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develop #169 MARCH 2016

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Everything you need to know about getting your firm recognised at this year's celebration

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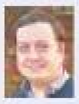

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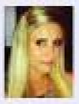

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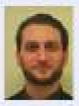

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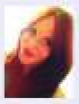

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Editorial

TIMES ARE CHANGING – AND SO ARE WE

Let's be honest: most games aren't quite finished when they're released. They're in as fine a condition as possible, but there's always something you can patch in later, always room for improvement.

Across mobile, PC and console, that's being taken one step further with monthly updates slowly transforming a title over time into something that goes beyond the creators' original vision – just look at *Driveclub*, for example.

The new *Develop* is much the same. We've been itching to give your favourite development bible a revamp for quite some time but didn't want to damage the hard work the team has put in over the past 15 years. After carefully grilling our readers and a lot of soul-searching, we understood that you just want more *Develop*. That's just what we've delivered.

> The new *Develop* aims to better serve developers around the world – and we welcome your suggestions.

In addition to the in-depth analysis and interviews you've come to expect of us, we're introducing tutorials and post-mortems, adding more information to our spotlights, and squeezing as much expert insight into these pages as we physically can. It's our biggest point-release since March 2007.

But, like so many games today, it's an ongoing process. Over the coming months, we're aiming to hone our new style and content to better serve developers around the world – and we welcome your suggestions. My email is below, my inbox is always open.

Just think of us as *Develop*-as-a-Service. Actually don't. That sounds awful.

James Batchelor
jbatchelor@nbmedia.com

alpha

NEWS & VIEWS ON GAMES DEVELOPMENT

MUST-SEE AT GDC
Panels, presentations and post-mortems you can't miss
P07

GDC GUIDE
Your directory to the biggest exhibitors and their booth numbers on the show floor
P08

WRITER'S BLOC
Rhianna Pratchett on the importance of narrative designers
P11

THE PERCEPTION OF GAMES DEVELOPMENT

Kickstarters and regular blog posts are in danger of glossing over the public's appreciation of the harsh realities involved in bringing a game to market. **James Batchelor** asks leading devs at Playtonic, Cloud Imperium, Ninja Theory and Epic about potential ways to educate the masses

At the start of the year, 20-year-old gamer Devin Tripp set up a Kickstarter with the aim of raising $200,000 for a *Star Wars* RPG.

While Tripp acknowledged he had no development experience, he hoped to hire devs to help him create a title that would "completely blow people away, like *Fallout 4* or *The Witcher III*".

The Kickstarter was cancelled after Tripp was cruelly mocked by people hiding behind the anonymity of the internet, but it served as a reminder that there remain misconceptions about games development among the public.

Not only does a goal of $200,000 barely come close to the development costs of *The Witcher III* – which took $81m to make – it also fails to take into account the costs of licensing, setting up a studio or the full scale of such an ambitious project.

It's a level of general ignorance that many devs are all too familiar with.

"There's still the belief that we sit and play games all day," Playtonic's MD and creative lead Gavin Price tells *Develop*. "I think it always surprises people to understand how many developers it takes to ship games of a certain scale.

"The best resource you can give any project is time, and time is expensive no matter what your headcount is.

> **It always surprises people to understand how many developers it takes to ship games of a certain scale.**
>
> *Gavin Price, Playtonic*

"As a developer that has successfully used crowdfunding, it makes you think creatively to utilise every bit of time and money to create something greater than expected."

TRIPLE-A'S LEGACY

Chris Roberts, CEO of *Star Citizen* studio Cloud Imperium, says the vast majority of gamers are still accustomed to the triple-A model.

"The publisher doesn't really roll out the promotional campaign until they are deeper into the dev process – but it may have taken the team three to six years to get to that point," he explains. "The public

Above, left to right: Cloud Imperium's Chris Roberts, Ninja Theory's Dominic Matthews and Playtonic's Gavin Price

doesn't see all the bumps along the way, the delays the team encountered and how many times they had to redo something because it wasn't fun."

Price adds that there are other variables that affect development costs that are rarely, if ever, covered by the games media and therefore conveyed to the end users.

"Location alone can be as big a factor as team size," he says. "We're a team of 20 in Burton-on-Trent – I wonder how big a studio you could run in San Francisco for the same money?"

Then there are the games that are taken back to the drawing board or scrapped altogether – the ones players will likely never know about.

"Consumers don't realise just how many games get canceled," says Roberts. "Now with Kickstarter, everyone is betting that a project will ultimately be completed and will never have any issues. That almost never happens in development, because the norm is that games take longer and cost more, and a lot of them just don't work out."

INDIE INSIGHT

There is an ongoing change in the games industry that is exposing more consumers to the true nature of development and helping them understand the trials of bringing a game to market.

"The rise of independent development has given developers the freedom to be open in their creative processes and share the making

of a game at every step," says Dominic Matthews, product development manager at *Hellblade* studio Ninja Theory. "There is an appetite among players to see behind the curtain and understand the development process – it is up to us as developers to embrace this enthusiasm and use it as a means to help make our games successful."

> **Devs should concentrate on showing what a great value entertainment medium games are.**
> *Mike Gamble, Epic Games*

Ninja Theory made a rare and bold announcement when it first unveiled *Hellblade*, promising to be open about the game's development from the beginning: regular updates and developer diaries, in-depth insights into aspects of the title's creation and more are shared online by the studio.

The UK developer isn't alone, either. Several studios now regularly update their community on the progress of their game. Not only does this help gather an audience before a title is even finished, many devs believe this is perhaps the most efficient way to educate the masses about the hard work that goes into development.

"We try our best to share information," says Roberts. "Those monthly reports we post on our *Star Citizen* page are more than I ever gave to EA or Microsoft when I was developing for them – and they were writing the cheques."

Price adds: "We love to surprise gamers and, had we been constantly revealing our plans, we could've got lost in the noise of everyone doing the same. Yet for other devs, the exact opposite is true and it can be what helps create a mega-hit – revealing your game as a concept alone would work."

However, Roberts warns that being completely open about your game's development is a "double-edged sword".

"Since we share so much information externally, that provides ammunition for people who want to be negative," he says. "You have to put up with the critics because the transparency helps in the education process and more people than not appreciate it."

Matthews reflects: "We had faith that if we explained ourselves well enough fans would understand that what we show during development won't always be representative of the final experience.

"If we want open development to work as a strategy for gaining the interest of an audience, we have to take the risk in showing the game at early stages and be prepared for there to be misunderstandings along the way."

OPENING UP

So, is there an optimum way to better educate gamers about the highs and lows of games development? Epic Games' EU territory manager Mike Gamble questions whether or not we even need to.

"I enjoy watching films and TV but really don't have a huge insight into how they are made," he says. "Perhaps it is time we stop worrying about communicating how games are made as part of the marketing process and concentrate more on showing what a great value entertainment medium they are." ■

BRINGING DOWN THE BARRIERS

Another major factor helping to convey the delights and difficulties of games development is the ongoing democratisation of the biggest dev tools.

The fact that any gamer or aspiring games creator can access the likes of Unreal and Unity for free goes a long way to showing people how much hard work goes into making the best titles.

"Anyone interested in real-time interactive entertainment, whether they are enthusiasts or planning a career in the industry, can use exactly the same tools and features as professional developers," says Epic's Mike Gamble.

"Of course, given the sophistication of UE4 we are always working to provide accessible materials to tutor people on the best way to use the tools.

"Offering free samples and tutorials, hosting Twitch livestreams and building a vibrant community through online channels and user groups has proven to be the most effective way to do this."

However, *Star Citizen* creator Chris Roberts stresses that these are just entry points: "People who haven't had the experience in building games wildly underestimate the work it really takes and the details that go in to making a successful game. Even though Unreal and Unity make things easier to get up and running, if you want to build a *Witcher III*-type game, you are not going to build it any quicker than CD Projekt Red.

"There's definitely some naiveté out there. You can do simpler games quickly now, but deep games, no."

Playtonic's Gavin Price agrees, adding that while the barriers to entry might be lowered, the actual path to success becomes that much harder.

"It aids the production process, but not necessarily the creative process," he says. "The best tools in the world won't turn a bad idea into a good one so, to really benefit, both current and future devs need to pour more thought into defining what makes their game different."

AT A GLANCE

MARCH 4TH

Zelda: Twilight Princess HD

Take this! Link's Wii and GameCube adventure gets a second life on Wii U.

MARCH 6TH

Mother's Day

That is, if you're in the UK. But you should treat your mum well every day.

MARCH 8TH

The Division

Set in post-apocalyptic New York, the biggest change is the lack of traffic.

MARCH 11TH

Hitman

Baldy killer Agent 47 returns in the first episodic instalment of IO's latest.

MARCH 25TH TO 28TH

Easter Weekend

A chance to eat chocolate until you're sick. Oh, and something about Jesus.

DIARY DATES

EGX Rezzed
April 7th to 9th
London, UK
www.egx.net/rezzed

MARCH

Gaming Analytics Summit
March 3rd to 4th
London, UK
http://bit.ly/1SjjHzK

SXSW Interactive 2016
March 11th to 15th
Texas, US
www.sxsw.com/interactive

Game Connection America
March 14th to 16th
San Francisco, US
www.game-connection.com

GDC 2016
March 14th to 18th
San Francisco, US
www.gdconf.com

Hamburg Games Conference
March 31st
Hamburg, Germany
http://bit.ly/23Z3UKy

APRIL

EGX Rezzed
April 7th to 9th
London, UK
www.egx.net/rezzed

European eSports Conference
April 13th to 14th
London, UK
www.esports-europe.com

Launch
April 14th
Birmingham, UK
www.launchconference.co.uk

EVENT SPOTLIGHT

GAME CONNECTION AMERICA

True to its name, Game Connection aims to link up developers with prospective publishing and distribution partners and service providers.

More than 2,700 execs are expected to attend the three-day event in San Francisco's A&T Park, including 300 publishers and distributors from more than 48 countries.

Game Connection claims that 80 per cent of attendees have successfully closed deals because of the show.

The event built around a match-making system that aims to put develops in touch with the most suitable partners for their needs.

> 80% of Game Connection attendees have closed deals because of the event.

More than 6,000 meetings are scheduled and attended at each event. The Meeting Application is provided to those at the show to help them maximise their time on-site.

Visit **www.game-connection.com** to learn more about the show. ■

COMING SOON

DEVELOP #170

APRIL 2016: **THE MOBILE ISSUE**

With a smartphone in every hand and tablets boasting ever-increasing hardware specs, we ask experts in the booming market for their tips on monetisation, advertising, developing for multiple platforms, understanding analystics and more.

DEVELOP #171

MAY 2016: **THE START-UP SPECIAL**

Are you the next big thing in the industry? Let this serve as your indispensable guide to gathering a crack team of devs, setting up your very own studio workspace, securing funding and publishing support, and selecting the right tools for your game.

For editorial enquiries, please contact jbacthelor@nbmedia.com
For advertising opportunities, conact cnangle@nbmedia.com or jlane@nbmedia.com

GDC 2016

14 MUST-SEE SESSIONS

With hundreds of sessions crammed into the week, it's easy to miss the best of GDC. **Develop** is on hand to help with our pick of the best talks from this year's show

MONDAY, MARCH 14TH

Blending autonomy and control: Creating NPCs for *The Division*

10 to 11am, Room 134, North Hall

AI Summit

Massive Entertainment's senior AI programmer Philip Dunstan and game designer Drew Rechner reveal how they're populating *The Division*'s devastated New York City with enemy NPCs that can navigate an open world.

Rendering *Hitman* with DirectX 12

11.20 to 11.50am, Room 135, North Hall

Tutorials & Bootcamps

IO Interactive details the tools that help give the new *Hitman* its stylish visuals and reveals how the team makes the most of DirectX 12.

Catch 'Em All: Pokémon Go and Real World Gaming

3 to 3.30pm, Room 2001, West Hall

Smartphone & Tablet Games Summit

Niantic CEO John Hanke will give attendees a first look at the upcoming mobile spin-off *Pokémon Go* and discuss how the team used its learning from *Ingress* to build a game where players are encouraged to interact.

TUESDAY, MARCH 15TH

Raid on Rise: Narrative creation on *Rise of the Tomb Raider*

10 to 11am, Room 3016, West Hall

Game Narrative Summit

Rhianna Pratchett is joined by the narrative and creative teams from Crystal Dynamics as they reflect on the continuing reinvention of gaming icon Lara Croft and how story and characterisation can be essential to success in the triple-A space.

The Vainglory Story: Five lessons from building a touch screen eSport

3.50 to 4.20pm, Room 2020, West Hall

eSports Summit

Super Evil Megacorp COO Kristian Segerstrale will share the biggest insights from the rise of *Vainglory*, a title that has become a major eSports player within a year of its launch.

Immersive Cinema: Stories from the experiments underway at Lucasfilm's ILMxLAB

5.30 to 6.30pm, Room 2002, West Hall

Entertainment VR/AR track

The experts at Industrial Light & Magic and Skywalker Sound give a rare look at the experiments the creative minds behind *Star Wars* are working on.

WEDNESDAY, MARCH 16TH

Texturing *Uncharted 4*: A matter of Substance

11am to 12pm, Room 2014, West Hall

Visual Arts track

Naughty Dog artists discuss how they used Allegorithmic's Substance toolset for texture and asset creation in the upcoming *Uncharted 4*.

Best Practices: User conversion, payment flows and in-game economy management

2 to 3pm, Room 2011, West Hall

Monetisation track

SuperData's Joost Van Dreunen and Stephanie Llamas explore the biggest challenges devs face when asking players to open their wallets.

***Fallout 4*'s Modular Level Design**

3.30 to 4.30pm, Room 135, North Hall

Design & Visual Arts tracks

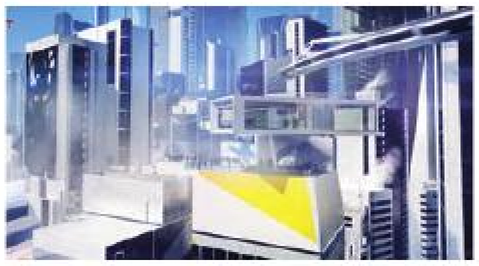
Putting in a rare GDC appearance, Bethesda Game Studios will offer an analysis of the techniques used to help a relatively small content team design *Fallout 4*'s enormous game world.

THURSDAY, MARCH 17TH

Lighting the City of Glass – Rendering *Mirror's Edge: Catalyst*

10 to 11am, Room 2020, West Hall

Visual Arts track



Fabien Christin, senior lighting artist at EA DICE, talks attendees through the tools and technology used to create the metropolis setting of this year's *Mirror's Edge* reboot.

***Assassin's Creed Syndicate*: London wasn't built in a day**

4 to 5pm, Room 2005, West Hall

Programming track

Ubisoft's lead tools developer Damien Bastian reveals the methods of world-building that saw last year's *Assassin's Creed* take shape, such as road mesh generation and building placement, as well as showing the evolution of the virtual Victorian London.

History and Game Design

5.30 to 6.30pm, Room 2001, West Hall

Design track

Paradox Interactive shares how it balances creating a game that is historically accurate while still mechanically enjoyable. The studio will be using examples from its own franchises, such as *Crusader Kings*.

FRIDAY, MARCH 18TH

Rules for Development (of People)

10 to 11am, Room 3005, West Hall

Business track

Blizzard's senior HR manager Julie Farbaniec lays down four rules that will help you accelerate your staff's development, using practical examples from the studio's own experiences.

Classic Game Postmortem: Diablo

3 to 4pm, Room 134, North Hall

Design & Programming tracks

Veteran developer David Brevik dissects the transformation of the iconic RPG and reveals how it became a modern classic. ■

> There are, of course, hundreds more sessions to choose from. Find them at **schedule.gdconf.com.**

WHO'S AT GDC 2016?

The GDC Expo is a veritable labyrinth of service firms and tools providers – but don't fret. **Develop** is on hand to help you find the best technology providers and potential partners

AMAZON LUMBERYARD

Booth 1224, GDC Expo

The retailer-turned-platform-holder will be showing off its new game engine, built to help devs create Xbox One, PS4 and PC titles. You can read more about Amazon's plans for games development tools on page 35.

AUDIOKINETIC

Booth 524, GDC Expo

The creator of Wwise and SoundSeed will be spreading the word about its products, their latest updates and how they can help developers improve the audio quality of their games.

AUTODESK

Booth BS2622, Business Center

Known for its art and animation software such as the Maya range, Autodesk will no doubt be revealing more about its new Stingray game engine, announced at GDC last year.

CRYTEK

Booth 1602, GDC Expo

The engine provider will once again be introducing its high-end game creation tools to new and established developers. The company will also be on the lookout for new talent, setting up shop at booth CC2406 in the Careers Center.

DIMENSIONAL IMAGING

Booth 2342, GDC Expo

This Scottish firm's performance capture technology has been used in numerous triple-A blockbusters, including Remedy's upcoming *Quantum Break*. GDC attendees can learn more on the show floor.

EPIC GAMES

Booth 1024, GDC Expo

Now available for free to everyone, the Unreal Engine will be demonstrated on the show floor with the help of not only Epic Games' own tech demos, but also a number of projects built by the firm's talented community.

FACEWARE TECHNOLOGIES

Booth 1244, GDC Expo

Having been brought on board for blockbusters such as *The Witcher III* and *Grand Theft Auto V*, Faceware will be in San Francisco to introduce its powerful facial performance capture hardware and software to developers.

FIRELIGHT TECHNOLOGIES

Booth 624, GDC Expo

The Australian company behind widely-used audio tool FMOD will be on hand to discuss its product with devs of all sizes. FMOD has been used in such recent hits as *Just Cause 3* and *Forza Horizon 2*.

GAMESPARKS

Booth 105, GDC Expo

Devs will be able to find out more about the Backend-as-a-Service provider and how it can help studios with all the intricate server-side tasks that have become fundamental to multiplayer games on all platforms.

GEOMERICS

Booth BMR2640, Business Center

The ARM-owned company behind impressive lighting tech Enlighten will be looking for more development partners that can make the most of its tool, as well as demonstrating the possibilities for global illumination.

GOOGLE

Booth 612, GDC Expo

The internet giant will be prominent at GDC 2016, with several of its most important teams manning the Expo booth. Experts will be on hand from Google Play, as well as its affordable entry to the virtual reality market, Google Cardboard.

GRAPHINE

Booth 429, GDC Expo

Tools provider Graphine will once again be flying the flag for its Granite texture streaming software. The SDK recently received a full update – you can read more about Granite SDK 3.0 on page 66.

HAVOK

Booth BMR2822, Business Center

Acquired last year by Microsoft, the leading middleware provider will still be showcasing its wide range of products, handling everything from physics and destruction to cloth and AI.

INDUSTRIAL LIGHT & MAGIC

Booth BMR2630, Business Center

In addition to giving a talk on its experiments with virtual reality, the creative force behind *Star Wars* and countless other cinematic special effects-fests will be meeting developers to discuss what it can bring to the world of games.

ITALIAN TRADE COMMISSION

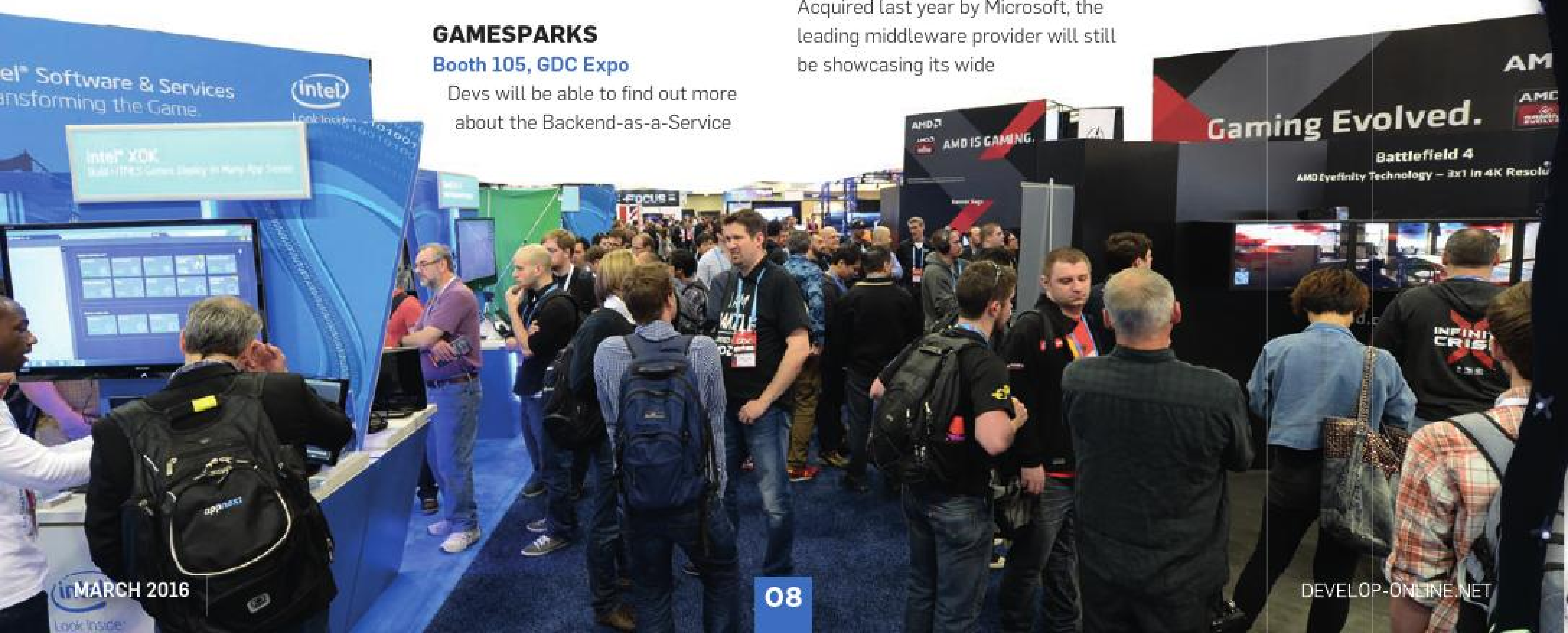
Pavilion 702, GDC Expo

Aiming to raise the profile of the Italian games industry, this government organisation is working with local trade body AESVI to bring more studios to GDC, all under the duo's 'Made In Italy' banner.

MARMALADE TECHNOLOGIES

Booth 1016, GDC Expo

The growing tools provider will not only be showcasing its recently revamped Marmalade Platform, but also its newly released Marmalade Cloud Services, which draws on partnerships with GameSparks, Game Analytics and more.


Intel Software & Services
Transforming the Game
intel
AMD IS GAMING.
Gaming Evolved.
Battlefield 4
AMD Eyefinity Technology – 3x1 in 4K Resolu

MICROSOFT

Booth BS2522, Business Center

Continuing to push its cross-platform strategy with Windows 10, Microsoft will be on hand to tell developers the latest ways in which the firm is making it easier for studios to develop for PC, mobile devices and, of course, Xbox One.

NINTENDO

Booths BMR2732, 2738 & 2742, Business Center

Don't expect the *Mario* maker to be giving everyone a glimpse at the NX, but do expect Nintendo's developer relations team to be educating studios about how they can get their games on the growing eShop.

NORTHERN IRELAND SCREEN

Booth 1016, Expo

The government-backed agency is looking to improve its support for games devs, as well as attracting studios from abroad to set up shop in Ireland.

NVIDIA

Booth 824, GDC Expo

Spread around GDC, the graphics specialist can also be found at Booth CC2424 in the Careers Center and on the Moscone's overhang at Booth MR2040. The firm will be showcasing its contributions to virtual reality, AI and even self-driving cars.

OCULUS

Booth 802, GDC Expo

The pioneer of the modern VR movement is on the cusp of a major milestone: the commercial release of Oculus Rift. Expect to learn more about the final device.

OPTITRACK

Booth 2116, GDC Expo

Often taking up a sizeable chunk of the expo floor to demonstrate its motion capture technology, OptiTrack will once again be showing off its latest hardware. You can read more about OptiTrack on page 80.

PERFORCE SOFTWARE

Booth 632, GDC Expo

Perforce has been a little quiet since its acquisition last month by Summit Partners, but it will still be keen to meet developers and show off its version management software.

SIDE FX

Booth 302, GDC Expo

Creator of the Houdini Engine as well as other procedural tools, Side FX has worked with top talent across animation and visual effects – including the team behind *Avengers: Age of Ultron* – but is keen to further expand its games business.

SIMPLYGON

Booth 218, GDC Expo

The Swedish firm will be showcasing the latest additions and updates to its optimisation software, which helps improve the level of detail for 3D models and environments through the powers of automation.

SOFTLAYER TECHNOLOGIES

Booth 1910, GDC Expo

The IBM-owned company specialises in integrating cloud computing into games and apps, handling storage, networking, security and more – and experts will be on hand to talk devs through the services it offers.

SONY COMPUTER ENTERTAINMENT

Booth 1202, GDC Expo

With PS4 leading the console market and PlayStation VR shaping up to be a serious contender in the virtual reality space, expect plenty to see at the PlayStation booth. Sony will also be in the Careers Center.

SUMO DIGITAL

Booth 1016, GDC Expo

The UK developer behind *LittleBigPlanet 3* and the upcoming return of *Crackdown* will be attending GDC to spread the word about its talented team and hunt new talent for its recently opened third studio.

UK GAMES INDUSTRY STAND

Booth 1016, GDC Expo

Hosted by trade body UKIE and government organisation UK Trade & Investment, this will be the hub for a multitude of British firms in San Francisco, including Sold Out, Wales Interactive, Cubic Motion and numerous indies.

UNITY TECHNOLOGIES

Booth 1402, GDC Expo

With Unity 5 now being used by countless developers around the globe, the engine's creator will be on hand to demonstrate some of the coolest new features that will soon be available to its vast community.

VMC GAMES

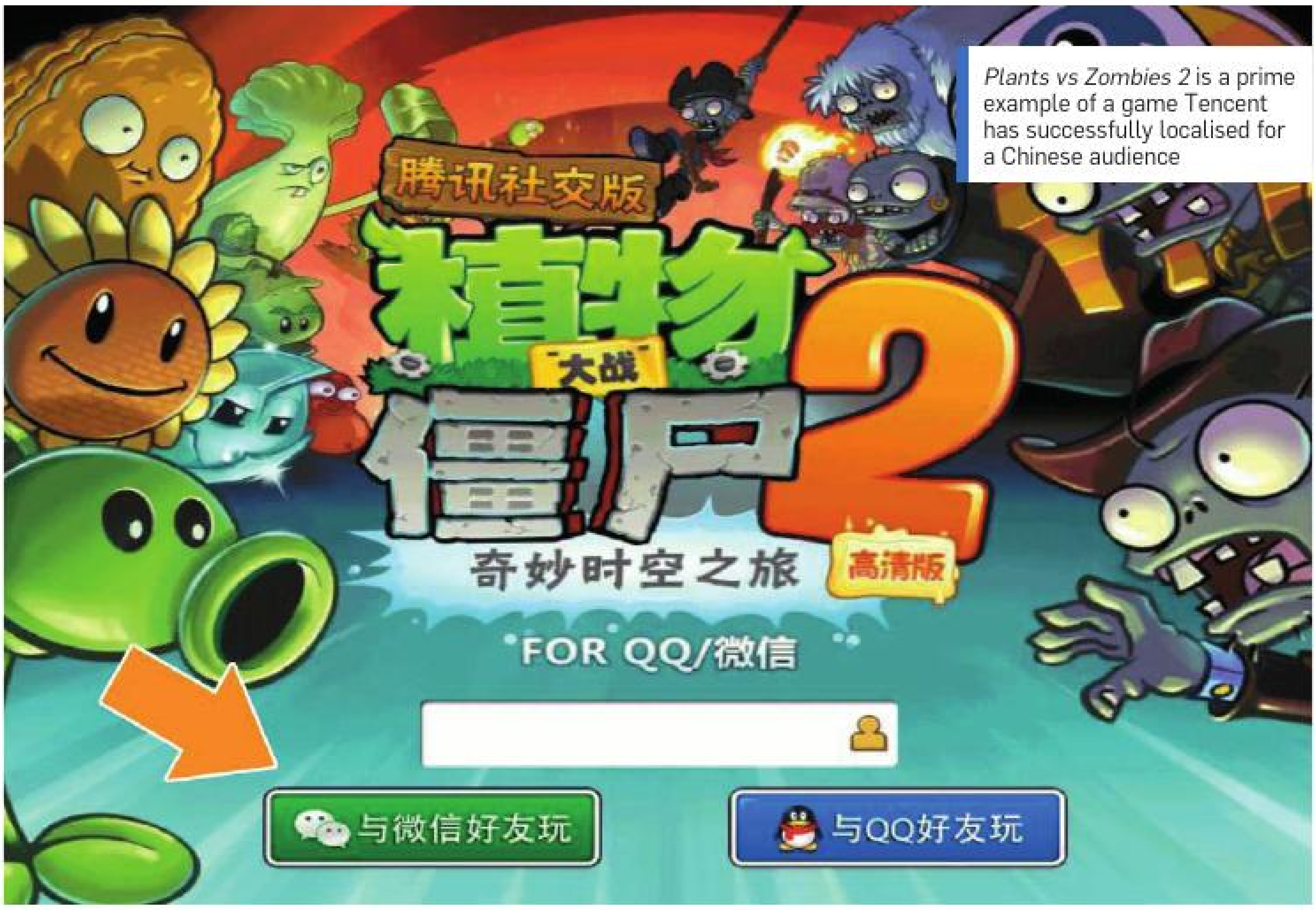
Booth 732, GDC Expo

The QA and localisation expert will be attending GDC to discuss how it can assist developers with beta testing, reaching new markets, handling live operations and more. It will also be able to share more about its Global Beta Test Network. ■

You can find the full list of exhibitors and their locations by heading to **www.gdconf.com/expo**

MADE FOR CHINA

Joost van Dreunen finds out how to localise for the lucrative market



Plants vs Zombies 2 is a prime example of a game Tencent has successfully localised for a Chinese audience

Back in the early 2000s, life was simple. Small design studios in Western markets self-published through their website and charged $20 for a 50MB downloadable time-management game. Even moderate sales would allow building out any designer's dream studio and hire a substantial team.

Soon, the market's supply-side became saturated because of the low barriers to entry. This put studios in a downward spiral, as they were forced to lower prices. To remain sustainable, many of them looked at countries like India, Russia and China, where programmers would cost roughly a third of their Western counterparts. Asia, to many game makers, served as a place to reduce costs.

Today, Asia is the largest growing consumer market for games.

BEAST IN THE EAST

With mobile reaching $25 billion (£17.3bn) in worldwide revenues last year, the market for 'easy to learn, difficult to master' games continues to show strong growth. Particularly so in countries like China, Japan, South Korea and, more recently, India. Markets like North America and Europe traditionally offer players that convert better and spend more on average.

In December, the average spend of a monthly active player on mobile in the UK was $1.20 (£0.83) compared to $0.68 (£0.47) in China. The audience in Asia is enormous; since 2011 the addressable audience there has more than doubled, and there are 1.3bn monthly active mobile players.

Satiating the massive appetite of an audience that size demands a never-ending search for content.

Big publishers in the Asian market, like Tencent, increasingly rely on Western game makers to provide them with new and innovative games. This Chinese titan has invested over $1.5bn in other game companies since 2008, of which 89 per cent was used to invest in or acquire Western firms.

Tencent's global strategy concerns itself only with two key pieces: technical barriers to entry and cultural sensitivity. It is the latter that poses a real challenge.

Based on analysing the preferences and best practices of game publishing in China, Tencent looks for games that suit its primary consumer market. Generally, the firm will make a small investment of as much as several million dollars, which comes with a list of specific instructions on what monetisation hooks to put into the game and how to optimise its game mechanics.

> **Since 2011 the addressable mobile audience in Asia has more than doubled.**
> *Joost van Dreunen, SuperData*

Most importantly, the game will then also be localised for the Chinese market. By doing so, Tencent guarantees itself a front row seat on all the internal analytics and can oversee the game's release in China to ensure a maximize chance of success.

To play into this ravenous demand, it makes sense to consider who's going to want to play your game and determine at the onset what informs the overall design agenda.

In considering your next project, think about how to develop for a global audience and specifically about how to appeal to audiences that are of interest to major firms.

Because the Tencents of the world will always be looking for new and innovative content to publish on their platform. ■

Joost van Dreunen is co-founder and CEO of SuperData Research
www.superdataresearch.com

MEANWHILE ON DEVELOP-ONLINE.NET

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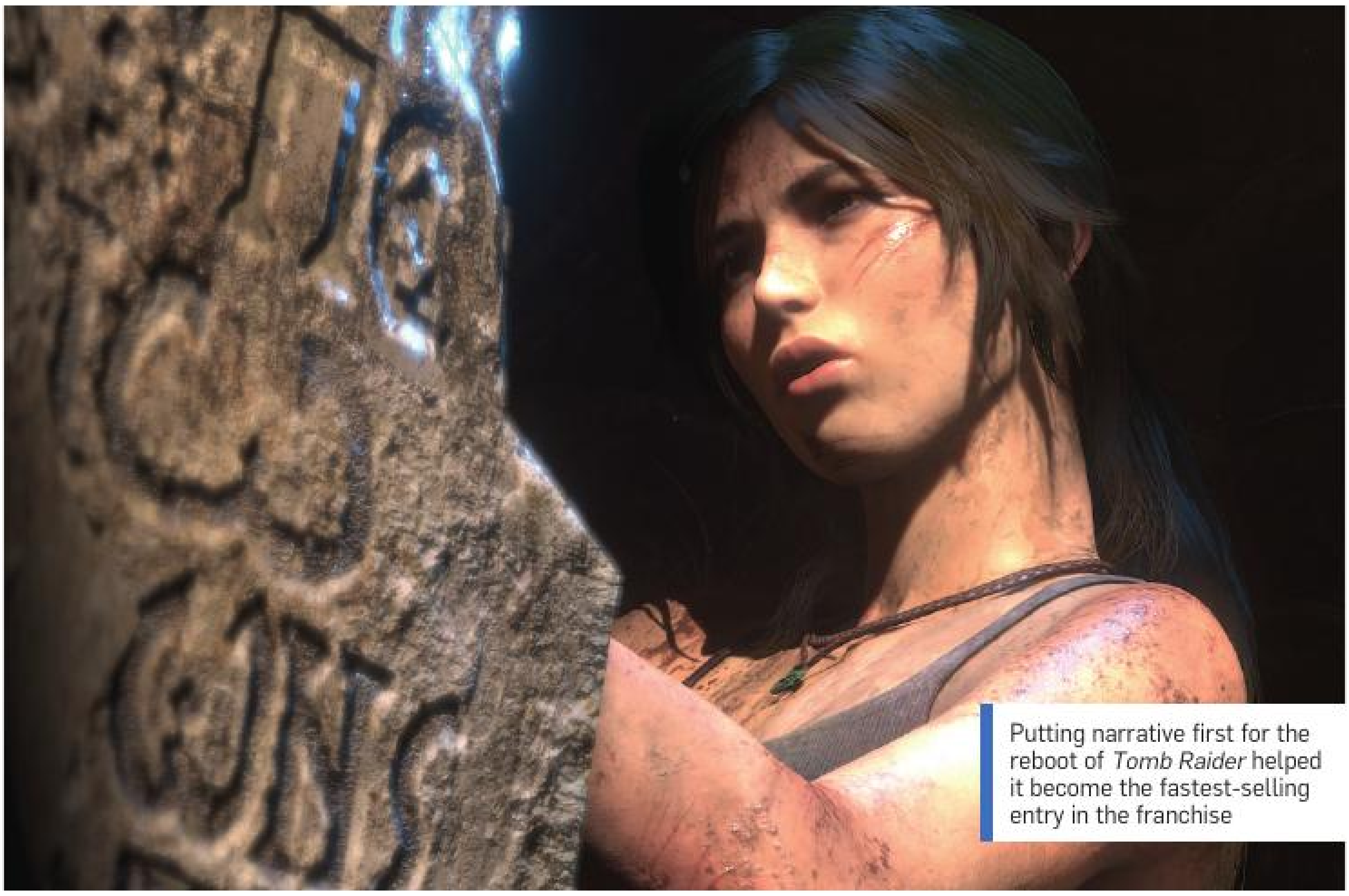
'WE MUST ALL BE BETTER STORYTELLERS'

Rise of the Tomb Raider scribe **Rhianna Pratchett** explains why the whole development team should be working with games writers

When I joined the industry as a games journalist in 1998, no-one was really paying much attention to story and character.

Narrative work was being done, but it was usually by designers, or perhaps the producer who wrote short stories at home, or literally anyone who had the time and inclination. Certainly no-one was out there really discussing the craft with their peers or the press.

But over the last 18 years, I've seen a lot of change. The focus on creating more impactful narratives has increased exponentially. There are more conferences, talks and workshops on games narrative than ever before. Established awards such as BAFTA and the WGA have recognised video game storytelling, script and character for a number of years now. It's an exciting time for storytellers.



Putting narrative first for the reboot of *Tomb Raider* helped it become the fastest-selling entry in the franchise

The drive for technical greatness and realism is ever-present. Yet it's a crowded race that's largely dominated by the triple-A. Focusing on narrative – from episodic storytelling, to environmental narrative, to capturing emotion and performance – is helping titles and studios stand out from the crowd.

When I worked with Crystal Dynamics to reboot *Tomb Raider* in 2013, we put the reimagining of Lara Croft and her journey front and centre of the whole experience. We cultivated a respect for the character which not only went through her narrative, but also her art, animation and performance. It became the fastest-selling title in the franchise, shifting over 8.5 million units and reinvigorating the franchise like never before.

Although professional game writers are not the rarity they used to be, the industry is still working out how best to use them and where exactly they fit into an established team structure – especially for those studios for whom past narrative endeavours may have only been considered a wrapper for the gameplay, and not what is rapidly becoming a fundamental component. As a result, we are still experiencing teething troubles trying to fit what are often seen as square pegs into the round holes of traditional games development.

WRITE TOGETHER

If writers don't already exist within a team, they can often be hired too late in the process, relegating them to a 'narrative paramedic' role where they can't do much more than patch up the story.

Much of this occurs because writers are considered to be the ones who just do the 'word bits', a part of development that is wrongly considered to be cheap, easy and can be slotted in at some future date.

> “Narrative in games cannot be seen as purely the writer's domain.
> *Rhianna Pratchett*

In fact, what writers can do is similar to what designers do – namely world-building and finding ways to use the mechanics and gameplay to create a cohesive narrative experience from the ground up.

Another area where writers can lead the charge is engaging the rest of the team in the narrative and seeing how all facets can play into and support it.

You see, as much as I love my area of development, narrative in games cannot be seen as purely the writer's domain. Narrative flows through everything in a game world – the art, animation, mechanics, music and so on. Therefore everything must be utilised if we are to make the most of the immense narrative power that this medium has.

In the future, we must all become better storytellers. ■

Rhianna Pratchett is an acclaimed author with work across games, film, TV and comics. You can find her on Twitter at **@RhiPratchett.**

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VR WARS

The first wave of VR headsets isn't even on shelves and yet developers are already spoilt for choice. **Matthew Jarvis** gets a grip on virtual reality's many contenders with the help of Oculus VR's Jason Rubin, Valve's Chet Faliszek, PlayStation's Simon Benson and Razer's Jeevan Aurol

The next era of the games industry has arrived.

After years of developer hardware iterations and a growing number of technology companies being swept up in VR's momentum, 2016 will see the release of the Oculus Rift, HTC Vive and PlayStation VR to consumers.

The headsets are far from the industry's first stab at virtual reality – insert your own joke about Virtual Boy here – or even the most recent VR devices to hit the market.

Yet, the arrival of the three most-discussed peripherals in gaming's history could prove to be an evolutionary step on par with the respective leaps to 3D graphics, online multiplayer and the smartphone – even if it isn't as immediately obvious.

"VR will be a different launch than iOS," admits Jason Rubin, president of worldwide studios at Oculus. "The App Store didn't open for well over a year after the iPhone existed; it started as a utility and became a gaming, entertainment and everything else device.

"VR's a little different, because it isn't innately a utility – you don't have to have VR. However, what I also know is that if you handed someone an iPhone back in the day they said: 'This is really neat.' But they didn't come out crying – it didn't change their life."

> "If you gave someone an iPhone back in the day, they said: 'This is really neat.' But it didn't change their life.
>
> *Jason Rubin, Oculus*

BUTTING HEADSETS

It's a bold statement, but the idea of VR transforming the face of gaming is hardly a sentiment exclusive to Rubin.

Oculus reignited belief in a legitimate virtual reality solution with its record-breaking Kickstarter in 2012. In the three-plus years since, companies both small and large have been converted, with Oculus itself being absorbed by Facebook for $2 billion just two years after its formation.

While serving as a blessing for the viability of VR as a platform, the multitude of headset makers has presented developers with a ▶

conundrum – a fragmentation of platform and technology. Rubin dispels any worries over potential confusion.

"In the early stages of a technology like this, the more players that are out there creating ideas – whether it's software ideas or hardware ideas – the better it is for the marketplace," he enthuses. "The more money, brainpower and work that goes into creating VR, the better VR will do at launch."

Simon Benson is director of PlayStation's immersive technology group. He believes that the division of virtual reality hardware is a situation developers are already well versed in.

"If we think of each VR offering in the context of its platform – for example, PS VR uses PS4 as a platform, Vive and Oculus Rift use PC, and Gear VR uses a Samsung smartphone – then actually, we can see that these entry points are already very familiar to developers and the platform holders are pretty well defined," Benson explains. "These strong relationships were responsible for guiding the whole gaming industry to where we are today and if they guide VR in an equally effective manor, then the future should be very bright."

Although on paper they may be rivals, Valve's Chet Faliszek highlights the willingness of VR advocates to work together to boost awareness of the sector as a whole.

> **"The more money, brainpower and work that goes into creating VR, the better VR will do at launch.**
>
> *Jason Rubin, Oculus VR*

"With Steam, we have always encouraged everyone to publish on as many platforms as they can – with OpenVR we are also encouraging and helping with that in VR," he tells *Develop*.

Several VR platforms have gone one step further in facilitating this freedom. One such example is the open-source VR platform OSVR and its Hacker Development Kit (HDK) headset, which is backed by peripherals firm Razer and VR specialist Sensics.

Jeevan Aurol, product marketing manager for Razer, agrees with Faliszek that, counter-intuitively, creators should bring their games and apps to as many headsets as they can in order to foster a rivalry that is ultimately beneficial to all.

"It's important for devs to not put all their eggs in one basket and thereby create a closed-off ecosystem that stifles competition and a healthy market," he argues. "Supporting platforms like OSVR enable anyone – from small Kickstarter projects to mega corporations – to compete and ultimately drive the industry forward."

Despite the communal effort, Benson sees the traditional battle tactics of the console space eventually emerging in the nascent sector.

"Platform exclusivity is something that is, again, a very familiar topic and we can expect this to play out as might do for any other platform launch," he predicts. "Typically this doesn't tend to cause too much of a growth issue and, with so many developers creating VR games, there will be enough to go around."

REALITY SHIFT

Whether it's Vive's 3D spatial tracking, PlayStation's console appeal or Gear VR's mobile accessibility that made up your mind, you've finally narrowed down which platform(s) you plan to build for. Now comes the hard part of actually beginning development. First step? Forget everything.

"Pretty much everything that held VR back in the '90s has been well and truly conquered with the current generation of hardware," Benson explains.

"Possibly the greatest challenge at the moment comes from the fact that gaming has evolved for several decades to fit the format of a TV screen and button-based controller.

"We are resetting the clock and starting the evolution of VR gaming right now. We know we have a lot to learn – and 'un-learn' – as we pioneer this new frontier, but it's going to be a hell of a journey and we are going to experience a lot of amazing discovery and fun as we take each new step.

"When we think back over the last 20 years and reminisce over the key moments when a special game came out that introduced us to an amazing new feature, mechanic or technology that transformed gaming as we knew it – we get to do that all over again in VR."

Faliszek offers some design advice unique to Vive's ability to track the player in 3D space.

"Whether you are doing a room-scale experience or seated, you have 360-degree tracking," he reminds developers. "This lets you design experiences that put players in the centre of the action, not at the edge of content. You can immerse people in the experience and they will always have their controllers and head tracked, no matter where they are looking. The ability for the end user to stop thinking and worrying about if they are going to lose tracking because they turned wrong frees them up to lose themselves in the experience."

Speaking more generally, he utters the mantra of virtual reality: 'Framerate matters.'

"It is now about matching what the system requires; not because you want it to look smooth, but because if you don't hit framerate you will get people sick," he warns. "This also means you need to start in performance and stay there during development – no more crunching at the end to get into perf."

Benson highlights accessibility through clever design as key to building momentum among players yet to experience virtual reality.

"The first step to mainstream interest is to launch a VR system that people can easily access," he states. "The main help that developers can provide with this is to create lots of amazing VR experiences for everyone, but also to focus on making the experience as easy to access as possible; never assume that players know all of the terminology or understand how VR games work.

> "With VR, you need to start in performance and stay there during development – no more crunching at the end to get into perf.
>
> *Chet Faliszek, Valve*

"Putting effort into polishing up the user experience will make a big difference to people's first venture into VR."

As with any new technology, not every idea will pan out. Rubin reassures developers that success in virtual reality is a case of iteration.

"People did port first-person shooters over – they don't work as well directly in VR," he recalls. "This all works out with time. Developers come with what they know, they see what works and what doesn't.

"I have an incredible amount of respect for the group brilliance of the development community. They'll figure out what works and make it better, they'll figure out what doesn't work and revolutionise and change the way it's done."

For VR newcomers, Rubin says familiar tools are an ideal starting place – but taking your own route is just as acceptable.

"Unity, Unreal and CryEngine are very well situated to get in and not only make 3D assets, but then have those assets show up in VR," he explains. "Having said that, there are teams out there that are using their own engines and it's not causing them a lot of headaches."

THE WHOLE HOG

VR's infancy has seen many studios merely dip a toe in the technology by porting across existing titles. While avoiding the risk of going all-in, the trend has led to scattered criticism of virtual reality as little more than a platform for tech demos, rather than the basis of full-scale experiences.

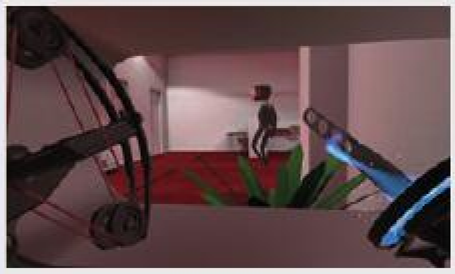
"This is a temporary thing to help bridge the gap until new titles being developed from the ground up for VR are ready," Aurol retorts. "Big titles take time so, in the meantime, ported titles can give you a first glimpse of VR, despite paling in comparison to games designed specifically for the medium.

"Then there is the middle-ground solution that caters to both VR and standard gameplay experiences,

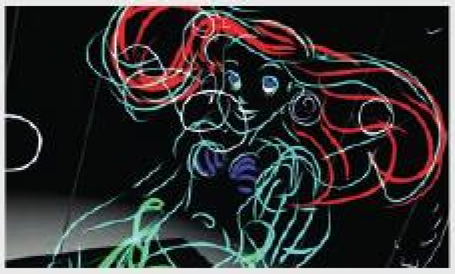
▶

MASTERS OF VIRTUAL REALITY

With such a massive range of innovative experiences and mechanics on show in the world of VR, we highlight four standout titles paving the way for the medium



BUDGET CUTS
Portal meets *Deus Ex* in the sneaky sci-fi FPS from Neat Corporation



TILT BRUSH
Paint in 3D space with this tool that has been demoed by Disney artists

EDGE OF NOWHERE
Insomniac is building its own engine for this Oculus-exclusive adventure

FANTASTIC CONTRAPTION
Northway's DIY puzzler puts priority on fun multiplayer and smart controls

where a VR mode was part of the initial conceptualisation of the project. Not all genres lend themselves to that, so having 100-per-cent-VR games is still crucial to fully leverage off the new possibilities VR offers – but 'dual-mode' titles enrich the overall content platform."

Benson points out developers' ability to overcome some of the perceived drawbacks of VR – such as the suggestion that the technology can be isolating.

"A huge area of opportunity for PS VR is the social features," he expresses. "Many people just think about a single player inside the headset, but playing together has always been a cornerstone for PlayStation, so we added a few cool social features into PS VR to allow developers to create some unique social experiences.

"An example of this is our 'social screen'. Games can use mirroring mode, so everyone in the room can simply see what the VR player is seeing, allowing them to follow the story, assist with problem solving or just know what made the player react. This makes it much easier to 'pass and play', as you would with any traditional single-player game."

He encourages developers to look beyond their understanding of conventional gameplay to offer experiences unique to virtual reality.

"Just exploring a virtual world in VR can be a pretty amazing experience – even if there is no game to play," he reveals. "This type of content can appeal to a much broader audience, but fundamentally uses game technology to drive it – this could be an interesting new opportunity for game developers."

The early days of virtual reality were plagued by reports of motion sickness and nausea. While hardware refinements have diminished the risk of the notorious 'barfogenic zone', Rubin advises developers to remain considerate of VR virgins who may find particular experiences overly intensive.

"As we progress, there's going to be somewhat of a theme park-like variance to the products out there," he predicts. "There are some things that everybody is going to be able to use. Then there will be some products that people look at and they say: 'You know what? I don't generally like the really exciting things and I just will avoid them.' That's fine.

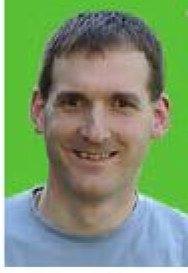
"As long as the industry makes sure that people have signage that makes them aware of that, everybody is going to find something to love."

WHAT FOLLOWS THE FUTURE?

The release of the big three headsets to consumer marks a turning point for the games industry. Yet, developers have already experienced multiple iterations of the devices throughout their infancy – and the next few years are sure to bring further major changes and advancements. So, what can we expect from the future of VR?

"More than ever before, developers are learning, sharing and working together," observes Faliszek. "What we saw last year at GDC was just the start. This year you will see experiences that move you and throw you into scenes where you need to react and move – be physical. Games like *Space Pirate Trainer* make it where it isn't your avatar that feels like an action movie hero but you – because you are the one doing the crazy moves."

> Don't put all your eggs in one VR platform basket.
>
> *Jeevan Aurol, Razer/OSVR*



Benson agrees that "the next year will be about breadth of experience".

"I look forward to seeing lots of VR games that push the boundaries of play in many different directions and start to show us just how much creative opportunity VR can offer," he continues. "After this, I hope to start to see more standardisation of some VR elements, such as control schemes, user feedback and locomotion methods, as the industry starts to relearn how to interact with this new format."

Rubin reaffirms the effect that capturing a core audience will have on both the absorption – and creation – of VR content.

"Release is great because it democratises the platform," he states. "Everybody can buy a headset, anyone can play with it – you don't have to request a developer kit.

"Now that the hardware and the SDK underlying it and everything else is stabilising, it makes it easier for the software to move quickly. You will see software revolution over the next few years as opposed to the hardware revolution that's been happening over the last few years. That will lead to better content."

And what does more content mean? Aurol offers some foresight.

"As more content becomes readily available, prices come down and the ease-of-setup improves, VR will become available to broader audiences and eventually will evolve into the next 'big thing' that impacts and disrupts the way we interact with technology in our daily lives," he responds.

Rubin looks to 2017 and beyond by praising the efforts so far by creators that have stuck with the platform and proved its viability.

"In a few years, we'll be in a great place – the content's good now, it'll be great over the next few years – and we'll really start to see what genres are going to become the centrepieces of VR," he says. "A lot of that is content that we will have never seen before that people will come up with over the next few years, in new genres enabled by VR, that moves us forward." ■

HARDWARE SHIFT

How will the consumer versions of the big three VR headsets differ from their developer kits? We asked their makers

HTC VIVE

Chet Faliszek, Valve: "From the first developer kit we delivered back in 2014, we have made sure developers were able to target the system shipping this year.

"While features have been added and the headset refined, what developers were creating back then still works today and our target has remained the same: a headset, two motion-tracked controllers and two base stations for a full 360-degree room-scale experience. But we do continue to iterate on ergonomics and other refinements."

OCULUS RIFT

Jason Rubin, Oculus VR: "Using a DK2 is like stepping back in time. The framerate is utterly different. The screen's not as good. The lenses are not as good. It's plastic, it's gimmicky, it doesn't feel as well-balanced – just all-in-all, the experience is nowhere hear as good as the latest Rift hardware that we're going to be launching to consumers. Just putting it on your head you feel the difference, and the quality of the experience is equally as different. Additionally, there are some practicalities to things; we didn't have a warranty on DK2.

"There are things about going into real consumer business that cost money. We're not making a profit on the Rift at $599; we're not out there to make money. That is the fair price for the manufacturing, warranting, shipping, distribution and components costs. I do believe it gives you an experience that is worth that amount of money."

PLAYSTATION VR

Simon Benson, PlayStation: "While the hardware has been in its final stages for some time, we have continued to make iterative improvements to the software to further improve the PlayStation VR experience."

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SOCIAL VR: TAKING VIRTUAL REALITY TO THE NEXT LEVEL

NDreams CEO **Patrick O'Luanaigh** discusses why VR isn't just a single-person experience

The combination of a VR headset and motion controls can act as an 'emotion amplifier' for players

Anyone who has been lucky enough to try the Oculus Touch *Toybox* demo will understand just how magical interacting with other people in virtual reality can be.

It's a great demo for many reasons. It elegantly illustrates the power of the Oculus Touch controllers, and shows why hand-tracking is such a natural input device for VR. More importantly, it demonstrates how powerful social connections can be inside virtual reality.

VR acts as an emotion amplifier: fear and awe are much stronger than in books, on TV or via mobile, where you are spectating from the outside. This amplification also seems to work with social emotions – the ability to have fun with someone else, feel connected to them and experience things together in a shared world.

This connection is evident even with well-animated AI characters. Sony demonstrated this well with its VR demo, *London Heist*. A gangster threatens you with a blowtorch and stares into your eyes, before handing you a phone. Having a virtual person look at you is quite unsettling, and the feeling of reaching out and taking an object from someone else is surprisingly powerful. When you can do this live with another human, the feeling is stronger still.

> **VR may well be the tool that allows virtual worlds such as *Second Life* and *PlayStation Home* to reach a mass-market scale.**
> *Patrick O'Luanaigh, NDreams*

SHARED REALITY

VR headset manufacturers understand the importance of making VR social. Both PlayStation VR and SteamVR will display a single screen on your display by default, allowing other people in the same room to see what you are doing.

PS VR goes one step further, allowing devs to create an entirely different view on the TV, so that non-VR players can interact in the game alongside the headset user.

VR is also not just about games. Facebook has spoken about its desire for virtual reality to allow people to 'teleport' themselves to real places in the world. Put a 3D 360-degree camera in the middle of your daughter's birthday party, and your family on the other side of the world can view this in real-time in their headsets and feel part of the event.

Virtual worlds are also going to be big in VR. Titles such as *Second Life* or *PlayStation Home* have grabbed the imagination over the years, but never managed to reach mass-market scale. VR may well be the tool that allows these to hit the next level.

Most people are hard-wired to be social, and the advent of the internet has allowed people to connect anywhere in the world. Add VR into the mix and, rather than a grainy Skype video or a Facebook message window, you'll actually feel that you're hanging out in the same physical space together. Just imagine the impact on international conference calls alone.

Ultimately, I'm convinced that the dream of a mass VR metaverse, illustrated by books like *Ready Player One*, will come to fruition – and my money would be on Facebook developing it.

So, the next time someone tells you that VR is an isolating single-player experience, tell them you know better. ■

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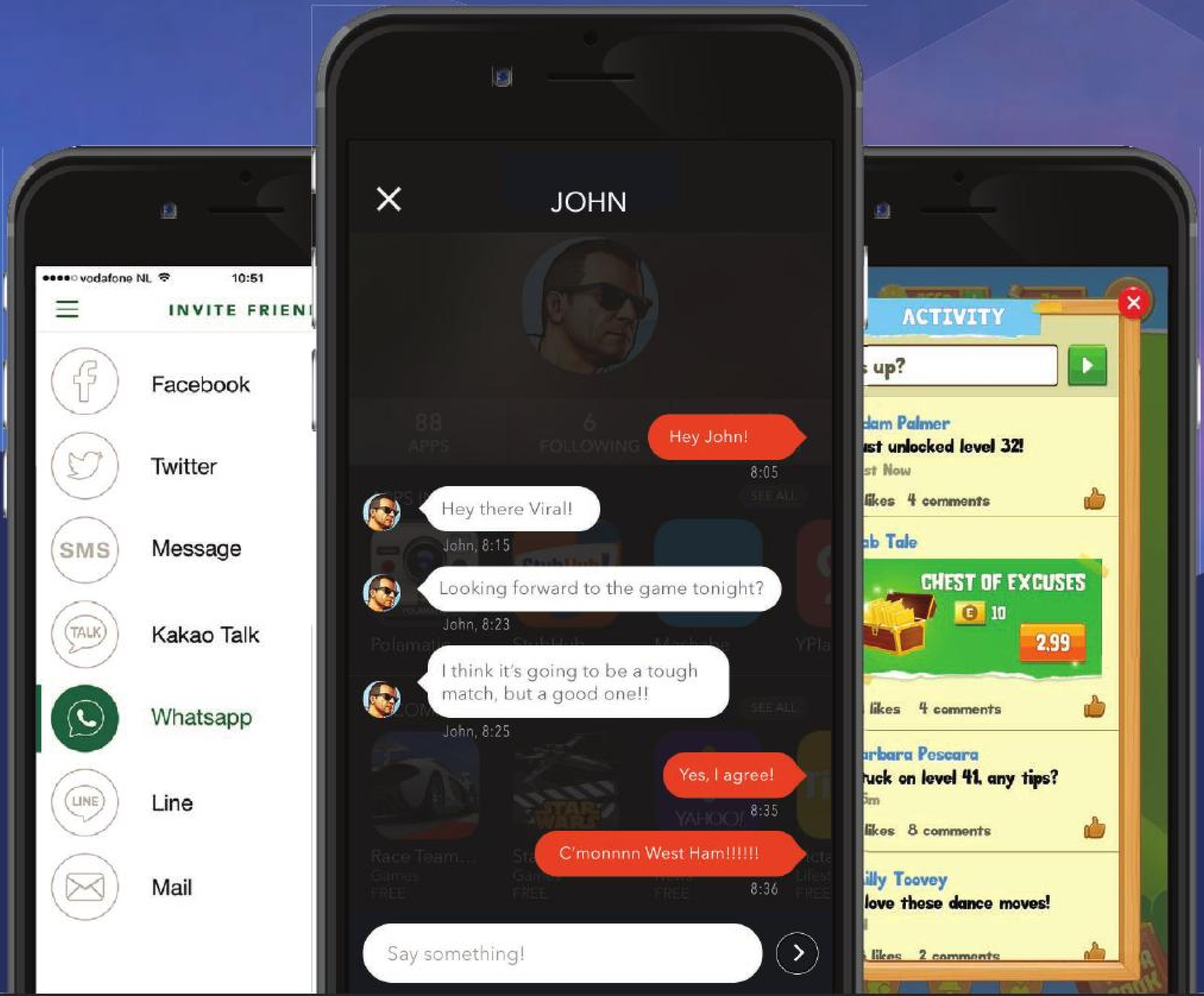
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Hey John! 8:05

Hey there Viral! John, 8:15

Looking forward to the game tonight? John, 8:23

I think it's going to be a tough match, but a good one!! John, 8:25

Yes, I agree! 8:35

C'monnnn West Ham!!!!!! 8:36

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Design & Creativity Tool
Production Tool
Engine
Services
QA & Localisation
Creative Outsourcer – Visual & Dev
Creative Outsourcer – Audio
Recruiter

STUDIO
Publishing Hero
Micro Studio
Independent Studio
In-House Studio
New Studio

SPECIAL AWARD
Studio of the Year
Development Legend

THREE STEPS TO WINNING A DEVELOP AWARD

01 MAKE SURE YOU ARE ELIGIBLE

- The games in question must be released somewhere in the world between **May 1st, 2015** and **April 30th, 2016**. Yes, commercial public beta phases are also eligible.
- Is your business based in Europe or the UK? If so, you are eligible – even if you have worked on games developed outside of the region.
- If you're based outside Europe, can you prove worthwhile support or collaboration with studios in the region over the past year? If so, you're eligible for selected categories. (Check the award description.)

02 PREPARE YOUR ENTRY

- Write a short pitch of 350 words.
- Provide five bullet points highlighting any relevant accomplishments.
- Add a list of links to any videos, images, music, websites and so on that support your nomination.

03 SEND IT IN

- Email your nominations to **developawards@nbmedia.com** before **5pm GMT** on **Friday, April 13th, 2016**.
- When all nominations have been received, they are each carefully appraised by the *Develop* editorial team.
- A shortlist for each award is then drawn up based on the provided entry documents (*See 'Prepare Your Entry'*) and industry standing.
- Following this, profiles of the shortlisted companies are sent out to a judging panel made up of more than 100 industry executives hand-picked by the *Develop* team.
- The judges confidentially disclose their choices, and those nominees with the most votes win in their respective award category.
- The names of the judges are only named after the event, and will be published in the next issue of *Develop*.

CREATIVITY

NEW GAMES IP – PC/CONSOLE

Who's eligible?
Any UK or European studio-made IP released for the first time in the last year, either as a boxed or downloadable product. New IPs should have introduced an original brand, plus new gameplay aspects and/or original characters to consoles, portable devices or PC.

Previous Winners
2015: *Life Is Strange* (Dontnod Entertainment)
2014: *Tearaway* (Media Molecule)
[As New Games IP]
2012: *Frozen* Synapse (Mode 7 Games)
[As New Games IP]
2011: *Enslaved* (Ninja Theory) [As New Games IP]
2010: *Heavy Rain* (Quantic Dream) [As New Games IP]
2009: *LittleBigPlanet* (Media Molecule) [As New Games IP]
2008: *Lost Winds* (Frontier Developments) [As New Games IP]

NEW GAMES IP – MOBILE

Who's eligible?
Any UK or European studio-made IP released for the first time globally – as opposed to a limited soft launch – in the last year for mobile platforms. New IPs should have introduced an original brand, plus new gameplay aspects and/or original characters.

Previous Winners
2015: *Plunder Pirates* (Midoki)
2013: *Clash of Clans* (Supercell)
[As New Games IP]

USE OF A LICENCE OR IP

Who's eligible?
Any game released in the previous 12 months by a UK or European studio that is a proven quality title, but is based on an external property (licensed or otherwise) not owned or created by its developer.

Previous Winners
2015: *Alien: Isolation* (Creative Assembly)
2014: *LEGO Marvel Super Heroes* (Traveller's Tales)
2013: *Angry Birds Star Wars* (Rovio)
2012: *Batman Arkham City* (Rocksteady Studios)
2011: *F1 2010* (Codemasters Birmingham)
2010: *Batman Arkham Asylum* (Rocksteady Studios)
2009: *LEGO Batman* (Traveller's Tales)
2008: *LEGO Indiana Jones* (Traveller's Tales)
2007: *LEGO Star Wars II* (Traveller's Tales)

VISUAL ARTS

Who's eligible?
Any UK or European studio that has demonstrated impressive graphical and/or distinct, iconic design work in the games or gaming content it has produced and released during the past year.

Previous Winners
2015: State of Play Games (*Lumino City*)
2014: Rockstar North (*Grand Theft Auto V*)
2013: Crytek (*Crysis 3*)
2012: Ubisoft Montpellier (*Rayman Origins*)
2011: Playdead (*Limbo*)
2010: Black Rock Studio (*Split/Second*)
2009: Media Molecule (*LittleBigPlanet*)
[For Best Audio & Art]
2008: Rockstar North (*Grand Theft Auto IV*)
[For Best Audio & Art]
2007: Rare (*Viva Piñata*)
[For Best Audio & Art]

AUDIO ACCOMPLISHMENT

Who's eligible?
Any UK or European studio that has demonstrated pitch-perfect audio design, sound or music creation in its games released during the past year. This refers to the audio design of the whole game. Use of licensed and original tracks can be taken into account.

Previous Winners
2015: Creative Assembly (*Alien: Isolation*)
2014: EA DICE (*Battlefield 4*)
2013: Sony London Studio
(*Wonderbook: Book of Spells*)
2012: EA DICE (*Battlefield 3*)
2011: Somethin' Else (*Papa Sangre*)
2010: FreeStyleGames (*DJ Hero*)
2009: Lionhead Studios (*Fable II*)
2008: Rockstar North (*Grand Theft Auto IV*)

USE OF NARRATIVE

Who's eligible?
Any game that has made clear efforts to balance storytelling and gameplay design, or experiment with how they are combined. Finalists will be those games that have successfully mixed narrative into the interactive experience. A project's specific writers will be credited where possible.

Previous Winners
2015: Dontnod Entertainment (*Life is Strange*)
2014: Starbreeze Studios
(*Brothers: A Tale of Two Sons*)
2013: Mike Bithell (*Thomas Was Alone*)
2012: The Chinese Room (*Dear Esther*)

▶

TECH & SERVICES

TECHNOLOGY PROVIDER

Who's eligible?
Introduced last year, this award is open to any company, of any nationality, that provides hardware and technological support to UK and European developers, whether in the form of motion capture tools and dev kits or microprocessors and server infrastructure.

Previous Winners
2015: Oculus VR

DESIGN & CREATIVITY TOOL

Who's eligible?
Any company, of any nationality, that has released middleware or tools that have enhanced or supported the work of UK or European games development teams in the past year. This award focuses on graphical, audio and other creative toolsets.

Previous Winners
2015: SpeedTree for Games (SpeedTree)
2014: Maya LT (Autodesk)

PRODUCTION TOOL

Who's eligible?
Any company, of any nationality, that has released middleware or tools that has helped any UK or European games teams improve efficiency and development in the past year. This award focuses on tools that aid with project management and releasing games on multiple platforms.

Previous Winners
2015: Perforce (Perforce Software)
2014: Perforce (Perforce Software)

ENGINE

Who's eligible?
This is an award for the best third-party engines. It's open to any engine, regardless of where it is made, that has enhanced the work of UK or European games development teams in the past year. Weight is given to new versions or significant upgrades.

Previous Winners
2015: Unity 5 (Unity Technologies)
2014: Unity Engine (Unity Technologies)
2013: Unreal Engines (Epic Games)
2012: Unity 3.5 (Unity Technologies)
2011: Unreal Engine 3 (Epic Games)
2010: Unreal Engine 3 (Epic Games)
2009: Unreal Engine 3 (Epic Games)

QA & LOCALISATION

Who's eligible?
This award is open to any UK or European company that has contributed significantly to usability, testing and translation of games and gaming content, providing these have been released or actively developed in the past 12 months.

Previous Winners
2015: Testology
2014: Testology

CREATIVE OUTSOURCER – VISUAL & DEVELOPMENT

Who's eligible?
Any creative outsourcer or studio – including individual external contractors – that has provided visual or game assets for an individual project released in the last 12 months, or contributed to the game's development. For example, by porting or creating select sections of the game.

2015: Speech Graphics
(*Middle-earth: Shadow of Mordor*)

CREATIVE OUTSOURCER – AUDIO

Who's eligible?
Any creative outsourcer or studio – including individual external contractors – that has provided audio assets for an individual project released in the last 12 months, or contributed to the game's development. For example, with voice acting, music or sound effects.

2015: Side (*Alien: Isolation*)

SERVICES

Who's eligible?
Any specialised external studio or company that has aided UK or European games development in a significant way. The award can be given to any firm that has helped with the production, monetisation or other aspect of the development process – providing the project in question has been active/released as a new product in the last 12 months.

Previous Winners
2015: Audiomotion
2014: Player Research
2013: Audiomotion
2012: VMC Game Labs
2011: Audiomotion
2010: Testology

RECRUITER

Who's eligible?
Any UK or European company working in the field of recruitment and human resources that has demonstrably served the needs and demands of the UK and/or European development community during the last 12 months.

Previous Winners
2015: Amiqus
2014: OPM
2013: Amiqus
2012: Amiqus
2011: Specialmove
2010: Amiqus
2009: Amiqus
2008: OPM

▶

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STUDIO

PUBLISHING HERO

Who's eligible?
Any games publisher, developer, hardware manufacturer, platform-holder or investor – from any country – that has supported UK and European games developers during the past year via the publishing, funding, distribution and/or co-development of new games.

Previous Winners
2015: Team17
2014: SCE Strategic Content
2013: Kickstarter UK
2012: Valve
2011: Valve
2010: Channel 4
2009: Apple
2008: Nintendo

MICRO STUDIO

Who's eligible?
Any UK or European games developer – consisting of an individual or small collective of people up to a maximum of ten at the time of nomination – who have had significant original output in the past year.

Previous Winners
2015: Roll7
2014: Vlambeer
2013: Fireproof Games
2012: The Chinese Room
2011: Mojang Specifications
2010: Hello Games

INDEPENDENT STUDIO

Who's eligible?
Any UK or European games development company, staffed by 11 people or more, which is not owned or managed by a publisher working on any available game platform. Applying studios should have had some significant output in the last year.

Previous Winners
2015: Space Ape Games
2014: Bohemia Interactive
2013: Supercell
2012: CCP
2011: Crytek
2010: Quantic Dream
2009: Media Molecule
2008: Splash Damage

IN-HOUSE STUDIO

Who's eligible?
Any UK or European publisher-owned games development company or in-house games development resource – including those acquired recently – with a title(s) released for any games platform in the past year.

Previous Winners
2015: Rockstar North
2014: Rockstar North
2013: Boss Alien
2012: Creative Assembly
2011: Media Molecule
2010: Rocksteady Studios
2009: Rockstar North
2008: Rockstar North
2007: Ubisoft France

NEW STUDIO

Who's eligible?
Any new UK or European studio that has had its first game commercially released – either via retail or digital distribution – during the past 12 months. Companies do not need to have been founded during that period to qualify.

Previous Winners
2015: Starship
2014: Space Ape Games
2013: Playground Games
2012: Bossa Studios
2011: Mojang Specifications
2010: Hello Games
2009: Media Molecule
2008: Doublesix
2007: Realtime Worlds

SPECIAL AWARDS

STUDIO OF THE YEAR

Who's eligible?

This Special Award gives singular recognition to a studio that has produced outstanding work in the past 12 months, primarily though any retail or download games that have been released commercially during the last year. It is open to any UK or European games development studio to enter and the winner will be selected by the *Develop* team.

Previous Winners

2014: Rockstar North

DEVELOPMENT LEGEND

Who's eligible?

The winner of this award, especially chosen by the *Develop* team, is an individual who has made a significant impact on games development – in a commercial, creative or technological sense – during their lifetime and career. This award is open to games sector icons from around the world.

2015: Tim and Chris Stamper
2014: Mark Cerny
2013: Tim Sweeny & Mark Rein (Epic Games)
2012: David Perry
2011: Ian Livingstone
2010: The Gower Brothers (Jagex)
2009: Phil Harrison

develop AWARDS 2016

HAVE YOU FORGOTTEN ANYTHING?

Have you lobbied?
No? Then follow our easy three-step process detailed on page 22.

Are you free on Wednesday, July 13th?
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- Gold Table of 10 – £2,299 + VAT
- Standard Table of 10 – £1,999 + VAT
- Single Seats – £199 + VAT

From Friday, June 3rd, the prices change to:

- Gold Table of 10 – £2,699 + VAT
- Standard Table of 10 – £2,399 + VAT
- Single Seats – £239 + VAT

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SPINNING BIRD KICK-OFF

Capcom's long-serving Street Fighter producer Yoshinori Ono tells **Will Freeman** about shaping the latest in the series, and an unlikely link between football and the beat 'em up

Is it fair to say that your history with *Street Fighter* is both personal and professional? I understand you started as a fairly dedicated player, very early on.

I was introduced to *Street Fighter* with the very first game in the series. Next year is going to be the 30th anniversary of *Street Fighter*, so it was 1987.

This was long before competition in games had got to where it is today. Back then there was no such word as 'eSports'; there was just this arcade game that came out called *Street Fighter*.

The first *Street Fighter* didn't have the modern six-button set-up with weak, medium and strong kicks and punches. There was just one button for punch and one for kick and, depending on how hard you actually hit those buttons, the strength of the attack would change.

It was adapted for *Street Fighter II* into a different system, but it was quite interesting in that first *Street Fighter*. It felt like a very direct connection, to be hitting the buttons hard to punch the characters on-screen hard.

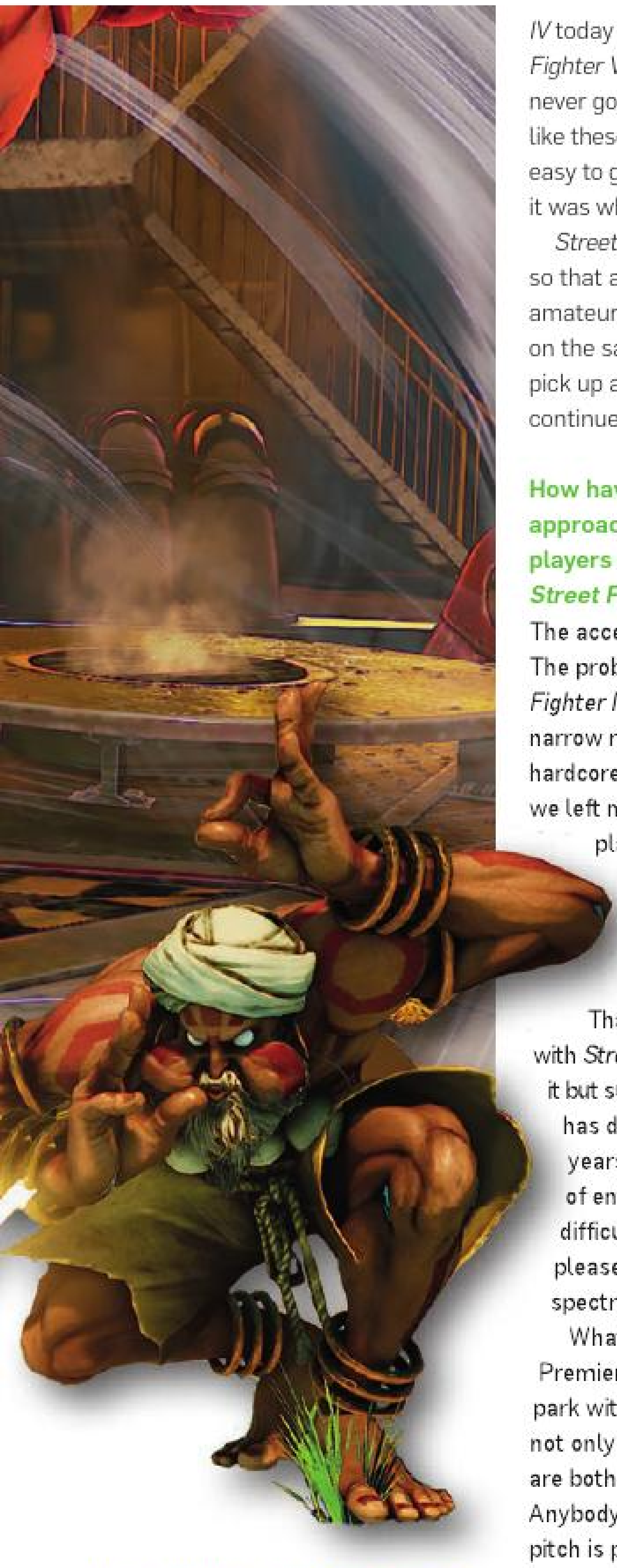
> **We've avoided the entry hurdle being to do with the player's literal physical ability.**
>
> *Yoshinori Ono, Capcom*

Street Fighter II came put a few years later and I was really blown away by the evolution of the game in just one iteration. It was such a better experience: so much deeper.

At the time, I was actually practicing kendo, and I almost started to think then of *Street Fighter* as a digital martial art more than a game. It was just like the real martial art I was practicing; you had to read your opponents' moves and use the moves that you knew to beat them. That was just an incredible experience to me, and I really started to think it would be great to work at the company that made these games.

I joined Capcom fairly shortly after that, and I've been with them for 25 years now. Most of that time I've been working on *Street Fighter*, so you could say that more than half of my life has been really dedicated to *Street Fighter* in one way or another.

I've put a lot of ¥100 coins into those machines over those years, but thankfully I'm now in a position to try and get some of those ¥100 back from Capcom.



In earning back those yen, you've most recently been producing *Street Fighter V*. Was there an overall philosophy or mantra that guided your team's work on the game?

The mantra was really 'reset'. *Street Fighter IV* is still active today, and it's been running for seven or eight years now; it's great to see a game run so long, and it's the longest-running *Street Fighter* ever.

The problem with that is that the level of play has got so high now it's like everyone playing now is in the Premier League, and playing for Manchester United; new players can feel very intimidated. It's almost like new players are getting left behind. If somebody started playing *Street Fighter IV* today – and there was no *Street Fighter V* – they might think that they're never going to be a Messi or Ronaldo like these Premiership guys. It's not easy to get started there anymore, like it was when it first came out.

Street Fighter V is a reset of the game so that anybody – whether they're pro, amateur or beginner – can be standing on the same pitch. Anybody who can pick up a ball can play this game, to continue my football metaphor.

How have you balanced that approach with satisfying devoted players who have been playing *Street Fighter* for years?

The accessibility is an important point. The problem was that with *Street Fighter III* we'd really gone down a narrow road and focused on the hardcore elements of the game, and we left more casual and beginner players behind.

The idea behind *Street Fighter IV* was to go back to basics and make a game everyone could handle.

That was something we achieved with *Street Fighter IV* when we launched it but such a high standard of play has developed over seven or eight years, there's a very narrow point of entry for new players. It's difficult to find something that pleases both ends of the skill spectrum without a reset.

What's the difference between a Premier League player and a kid in a park with jumpers for goalposts? It's not only about skill level, really. They are both playing the same game. Anybody who can kick a ball across a pitch is playing football. That feels satisfying and fun, but there is still space for very high skill levels.

With *Street Fighter V*, one of the things we've done there is make the control input timings more forgiving. That's an example of where – though we haven't dumbed it down – we've avoided the entry hurdle being to do with the player's literal physical ability in terms of pressing the buttons perfectly.

I wanted it to be the case that anybody who could pick up a stick could give it a go and produce cool-looking moves on the screen, and feel cool and feel good. That doesn't mean there isn't the depth and strategy the hardcore players want. Just because a less skilled player can put a good move together, a skilled player can still have the strategic mind and block that, leap over it, and do something else.

You've mentioned football more than might be expected in an interview about a fighting game. Do you see an influence over your work because of your love of football?

I feel a connection between *Street Fighter* and football because, while there's 11 players on each team, it is one team versus one team, the same way *Street Fighter* is one person against another.

More than that, the team on the field is made up of forwards, midfielders and defenders. When you're on the team you're not playing against one other footballer; you're playing against all those different types of player. There's 11 people you have to read and understand, with different attacks, and you have to know how they work alone and as part of the team.

You need a strategy for defense, and for attacking, and you need to be able to move between those two states. We have a whole range of characters for players to learn and read.

Releasing first on arcade had previously been the norm for the core *Street Fighter* series, but the latest game debuted on console. Is there any way the spirit of the arcade experience lives on in the series?

The best of the arcade experience is the atmosphere, and even the smell of the sweat of the place. Whether you're looking your rival in the eye, or jostling elbows, that's the arcade spirit. Having a crowd watch you, getting people on your side, saying how great you are, and being a spectator yourself. All of that is key.

It's important for us not to lose that history and legacy in fighting games, but we also have to face the reality of the fact that most people aren't taking themselves to arcades anymore.

So how to capture those feelings with technology? The spectator experience can come through easy video sharing. We can use the PS4 and PC's great back-end technology to connect people, even if you are in London and I am in Tokyo.

We can only do the best we can, and we have. But I'm not sure we've managed a digital smell of sweat. Not yet. ■

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Gears of War: Ultimate Edition
Image courtesy of The Coalition/Microsoft Studios

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FIXING **ROVIO'S** BROKEN WINGS

James Batchelor asks games VP Wilhelm Taht how the Angry Birds firm is recovering from multiple layoffs, returning to its entrepreneurial roots and adapting to the free-to-play world

The last two years have been rough for Rovio.

Two CEOs – Mikael Hed and Pekka Rantala – stepped down, hundreds of staff were laid off, studios were closed and the firm's financials have not made for pleasant reading.

It's been a worrying decline for the company that has openly said it wants to rival Disney, but executive vice president for games Wilhelm Taht believes the worst has passed.

"The past two years were, as everyone knows, not without challenges," he tells *Develop*, his pink *Angry Birds* hoodie as much a declaration of pride in Rovio's flagship brand as it is a fashion statement.

"There's no denying we went through a change and, unfortunately, that meant we discontinued certain businesses that had scaled up in the past and laid off a number of people.

"As *Angry Birds* released and grew quite big, we changed our position and focus from being a games company to being an entertainment company. All the while, the market shifted from a premium business model to free-to-play – and we were a little slow to respond."

> **The market shifted from a premium business model to free-to-play – and we were a little slow to respond.**
> *Wilhelm Taht, Rovio*

Towards the tail end of 2015, Rovio sought to rectify this with a major restructure that would see the entire company split into two business units: games and media. Taht maintains that it is "a little too early" to fully divulge the new strategy, but is more than happy to share the final vision.

"The goal was to create more independence within the business units themselves," he says. "We're returning to a more entrepreneurial approach to conducting our business.

"Naturally, there are mutual projects that we're working on and we align on a number of different factors when it comes to both businesses, but we try to operate in a nimble and entrepreneurial fashion with teams that feel like they have ownership of their business."

With this fresh hierarchy comes a new CEO: Rovio's former chief legal officer Kati Levoranta. While reluctant to speak on her behalf, Taht says the new exec brings "focus, operational firepower and structure" to the table, as well as respect for the games and media units' newfound independence.

"She doesn't involve herself in commercial and business models," Taht explains. "She lets us run our own businesses."

The plan to bring Rovio back to its entrepreneurial roots, plus a recent move to new premises finally uniting the entire company in one building, has

Rovio has said that *Angry Birds* will last for a hundred years, but it's exploring new IP, too

boosted the team's morale and enthusiasm for the coming year.

"We want to combine genres in new ways, we want to do unexpected things with our existing IPs," Taht enthuses. "And we have the movie coming up, which is very important for the games business."

HIGH FLYERS

Of course the central pillar of Rovio's business – games or otherwise – is still *Angry Birds*, a franchise the firm has repeatedly said it believes will last for "hundreds of years". While the series is still only seven years old, the 65m downloads already racked up by *Angry Birds 2* suggest the world has yet to tire of its slingshot-based antics.

But, as Taht observes, the industry has changed dramatically since the Birds first debuted and it proved to be a major challenge for the Rovio team.

"The original *Angry Birds* and its follow-ups were skill-based games through and through," he explains. "A 100 per cent skill-based gamer is difficult to bring into free-to-play. That's something we've worked very hard on for *Angry Birds 2* – and it's done really well."

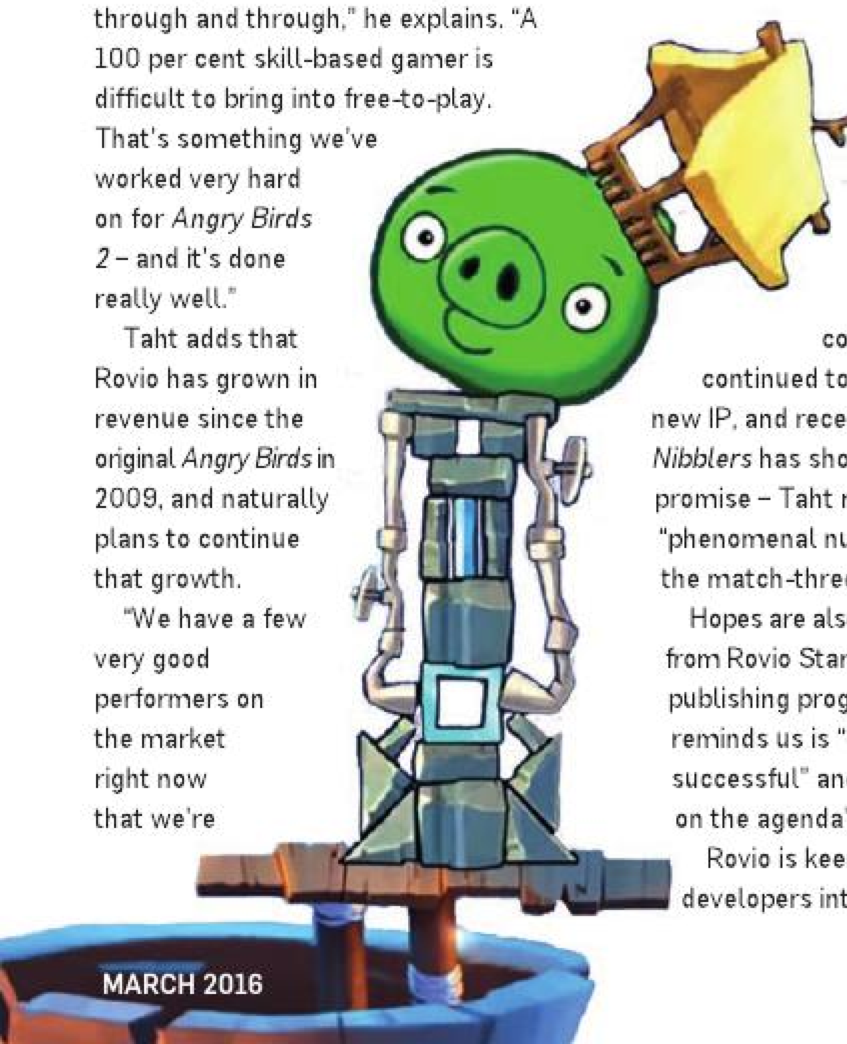
Taht adds that Rovio has grown in revenue since the original *Angry Birds* in 2009, and naturally plans to continue that growth.

"We have a few very good performers on the market right now that we're servicing and scaling up through user acquisition, and we aim to continue that," he says.

However, *Angry Birds* faces a similar issue to mobile megahits like *Candy Crush* and *Clash of Clans*: innovating while sticking to their winning formula. There's only so many ways to fling a bird at a pig, surely?

> **We need to keep our feet on the ground and focus on creating great games.**
> *Wilhelm Taht, Rovio*

"I'm not sure there is," Taht laughs. "You can come up with very novel ways to mash that up with other freemium game design elements, which we have been exploring internally."



HATCHING NEW BRANDS

Rovio's future is no longer solely dependent on the *Birds*. The company has continued to experiment with new IP, and recent release *Nibblers* has shown great promise – Taht reports "phenomenal numbers" from the match-three game.

Hopes are also high for a new hit from Rovio Stars, the company's publishing programme that Taht reminds us is "commercially successful" and "definitely still on the agenda".

Rovio is keen to bring more developers into the fold, too.

"Our ears and eyes are open to games that studios feel could fit with our cross-promotion network," says Taht.

"The vision is that, someday, one of our third-party collaborations will turn into something we can bring above and beyond mobile games. We've done trials on things like merchandising – for example, with *Plunder Pirates*. It wasn't at a massive scale, but we've tried. It would be wonderful to bring that to new brands."

While Taht is hopeful about Rovio's future franchises, the hard-learned lessons of the past two years are keeping the company's expectations in check. The firm is certainly not expecting the *Angry Birds* lightning to strike twice.

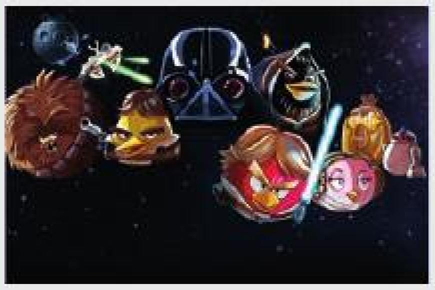
"If I were to say we're going to generate tens of *Angry Birds*, that would be hugely arrogant," he admits. "We hope to, of course, but we need to keep our feet on the ground and focus on creating great games, supported by new or existing IP that are really appealing to our target audience. With time, those can grow big."

Rovio's portfolio is not the only thing that's growing. While hundreds of employees were laid off last year, the firm is once again on the hunt for new games development talent. This time, Taht says, it will be at a more cautious and sensible pace.

"The games business is constantly recruiting," he says. "I urge developers to come to our recruiting site. We're very much interested in free-to-play design and product leadership – those are two areas we'd like to find as much talent as possible in.

"We've a lot of people from the UK in our offices, and we are growing, but cautiously. We're not accelerating at the level we have before, bringing all the challenges that brought to us." ■

FLOCK TOGETHER: ROVIO AND COLLABORATIONS



Rovio has never been overly guarded with the *Angry Birds* brand. Spin-offs such as RPG *Angry Birds Epic* and kart racer *Angry Birds Go* have been developed by third-party studios, and the firm has even secured partnerships with major franchises such as *Star Wars* and *Transformers*. Can we expect more crossovers in future?

"There's certainly a few brands out there we'd love to collaborate with," Rovio's Wilhelm Taht tells *Develop*. "We have nothing to share at this moment, but this is always an area that we have felt strongly about and we're naturally keeping our eyes open.

"The collaborations we did with *Star Wars* and *Transformers* are loved amongst the fans, and it's been a really interesting way to work with other developers."

Taht believes the mobile games market has now entered "the partnership era" – but what does that even mean?

"It means we need to keep having a healthy mix of internal and external development," he explains. "We at Rovio do not know everything – there's certainly areas of skills that we don't have, but have plans on building up internally. So partnering with great studios is something that is close to our hearts.

"We love some of the ideas we get and we're discussing some of them with studios across the globe. Some of the collaborations that we've seen studios so far have in fact started in a really simple way: we meet somebody at a show, or we exchange a few emails and there's a spark that becomes a game that reaches potentially hundreds of millions of users."

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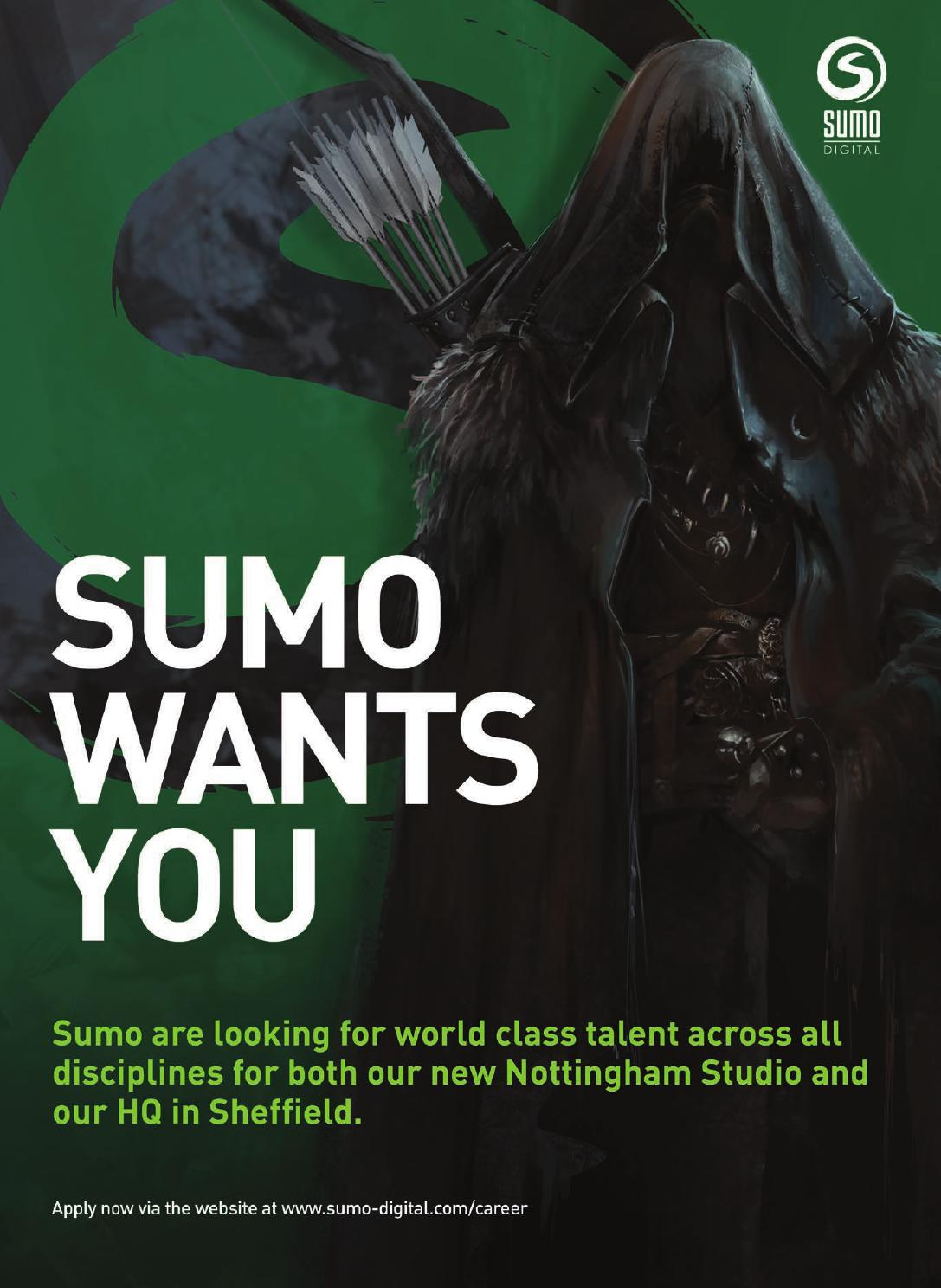
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Lumberyard is built on CryEngine, but features extra Twitch and Amazon Web Services integration

AMAZON LUMBERYARD: THE NEXT BIG GAMES ENGINE?

In a shock move, Amazon has launched its own engine. But can the newcomer really hold its own against the established might of heavyweights Unity and Unreal? **Matthew Jarvis** puts the questions to Mike Frazzini, vice president of Amazon Games

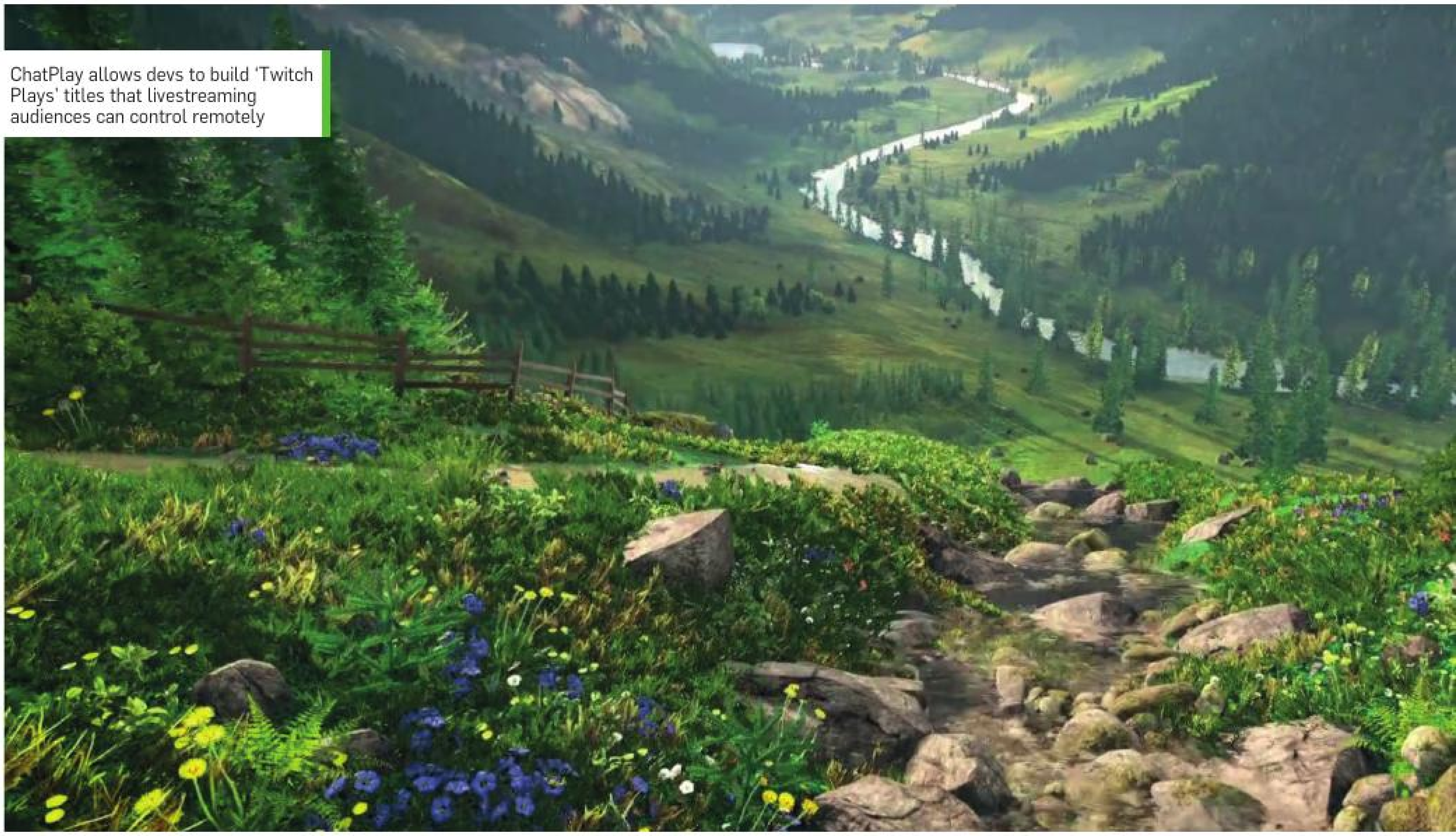
Amazon has been dabbling in the world of games for a while, but launching your own engine is a huge step up. Why was now the right time to launch Lumberyard?
As with anything at Amazon, it started with conversations with customers. We have a lot of developers as customers with Amazon Web Services, Twitch, our devices, our retail platform... so we've had ongoing relationships with them for a long time.

When we talked to them, what we heard was a consistent theme, which was that they wanted to spend more of their time and energy on creativity and differentiating aspects of their work, and less time on the heavy lifting and undifferentiated aspects.

As we looked at that and talked to them, they really wanted a robust commercial powerful toolset for making games. They wanted to be able to make games that connected to the cloud, but without needing to go and hire a bunch of specialised engineers to design, build and deploy backend game technology.

Then, of course, any artist – including developers – looks to build a fanbase and build relationships with those fans. We view Twitch as being a great opportunity to help developers with that.

Those are conversations that have been happening for years – this isn't something you just wake up and do really quickly. It takes a lot of people, time and energy. We've been at it for a while. In terms of timing, we had some closed beta customers and we obviously hire a lot of new people – as those people came in we were trying ▶



ChatPlay allows devs to build 'Twitch Plays' titles that livestreaming audiences can control remotely

to understand when it felt like it was a good time to launch a product. Based on the feedback we were were getting, it was a 'go'.

What are your priorities during Lumberyard's early days?

For us, it's about engaging with the development community and with customers to understand what they like, what they would like to see added, and which areas of interest we can use to inform our roadmap.

It's really been about how we've been thinking about our post-launch activities. Game engines are complex beasts, which is why we like the business so much – we think there's a tremendous opportunity to help developers by allowing them to spend more of their time on making and less on building and maintaining engines.

In that vein, you don't just pick an engine on the fly, you do research on it and think about it, so getting that feedback has really been our focus given that we're just getting started.

Lumberyard is based on Crytek's CryEngine. Why did you decide to use that as the foundation?

While the basis of the technology is CryEngine, we also have a lot of technology from AWS, Twitch and Double Helix – we purchased the studio a while back and they have a lot of technology they use to make games like *Killer Instinct* and *Strider*. The fusion of those three really comes down to what it is that you're trying to help developers do.

> **If a game developer doesn't have to build a feature, that's a good thing.**
> *Mike Frazzini, Amazon Games*

CryEngine is known for its visuals and performance, and those things were very appealing about it. It has also has hundreds of features that developers can use – or not – at their choosing. We really liked that. If a game developer doesn't have to build a feature, that's a good thing.

What differentiates Lumberyard from rivals such as Unity and Unreal?

Firstly, deep integration of AWS and Twitch. Those are very material; when you talk to developers about how hard it is for them to build connected games backends, it's quite challenging.

Then, if you talk to developers about how hard it is to build and engage with a community of fans, reach is one of the central challenges game developers face. Lumberyard's online connectivity helps that, because you end up building a bunch of community-centric features in your game that allow for a lot of virality.

Games is a highly competitive business, and to be able to offer such a toolset for free matters a lot to developers. The notion of a robust, commercial-grade toolset that's inexpensive was something that was very clearly something that developers sought after.

The full source is critical because the most successful games will deeply customise their experience for exactly the type of thing that they want to create. Those deep customisations require source code access. That's a big aspect of our launch.

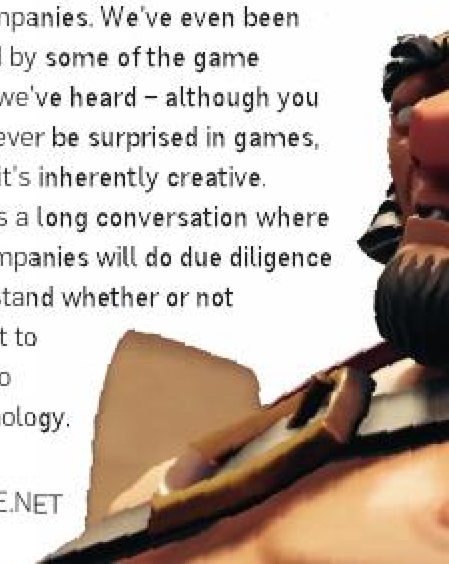
Lumberyard is billed as a 'triple-A' engine. What exactly does that mean?

We're talking to the biggest games companies, but also lots and lots of indies, and we're very happy with the initial reception that we've received.

Helping them spend more time on creativity, connect their games to the cloud so that they can create community-driven experiences, help them reach an audience on Twitch, provide a growing powerful set of tools to make beautiful and performant gameplay – those are the central aspects of what we're trying to achieve.

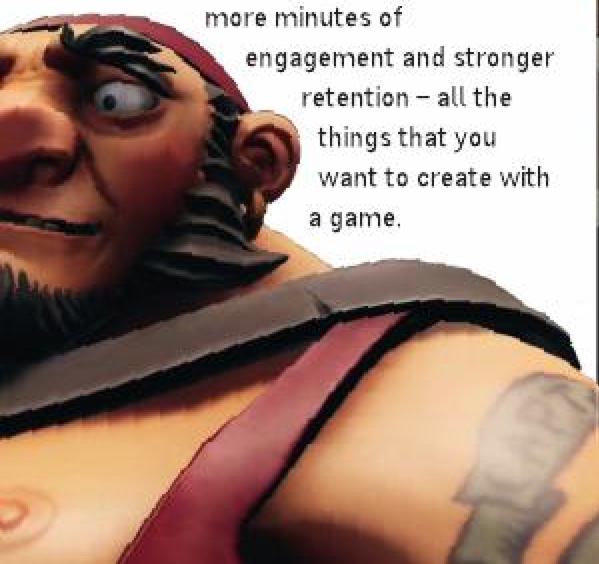
The response has been very positive, both from indies and very large companies. We've even been surprised by some of the game projects we've heard – although you should never be surprised in games, because it's inherently creative.

There's a long conversation where those companies will do due diligence to understand whether or not they want to commit to the technology.



Is Lumberyard focused on digital games only, or do you expect it to produce full retail products?
I see no reason why it wouldn't be both. That's ultimately up to the developers – they determine the platforms they want to ship on and how they want to ship. Whatever they want, and wherever their interest and demand lies, we're going to work hard to support.

Lumberyard is monetised through the use of AWS. How does that position the engine in the market?
It comes down to what we see in the industry today, as well as where we think it will continue to expand, which is this concept of community-driven games, where titles that build and garner large communities of online fans tend to enjoy larger fanbases, more minutes of engagement and stronger retention – all the things that you want to create with a game.



In terms of free versus not free, there's gradients – everyone has a business model and we like ours. It was informed by conversations by customers, but the idea of giving all the source code away to developers and getting the full toolset with the download is a critical aspect.

If you're going to connect your game to the cloud, Amazon would be a natural choice. You don't pay anything extra – it's all the standard rates when you use AWS.

We really felt like there was an opportunity there where you're getting a lot of technology for free and when we make money when you connect to AWS, it's in the context of your success – you're only paying when your game scales to lots and lots of users, and paying for services that you'd be paying for anyway.

Included in the Twitch integration is support for ChatPlay and JoinIn. Why should more devs consider utilising such features?
We're not trying to convince developers – it's more like inspiration.

A critical part of developers' lives is spent thinking about how they build a community of fans and then how they engage with that community. That's a very hard thing. We read a lot in the development community about acquiring customers, lifetime value and all those concepts which are very important. Obviously, the games that are the best at going out and garnering active and engaged fanbases are fully predicated upon the content itself.

Twitch is this extremely large and active community of fans that love games. To have this notion of a player, broadcaster and viewer all sharing an experience in a synchronous fashion is really interesting.

> “
> **We're not trying to convince developers – it's more like inspiration.**
> *Mike Frazzini, Amazon Games*

The idea is: how do we create tools that bridge that experience so that a player, viewer and broadcaster can all participate in some meaningful way? It's an area that we believe is ripe for continued invention, so our thought is that we provide tools to the community and, ultimately, the community shows us what can be done with the tools.

You have used the word 'community' a lot. Outside of Lumberyard, how is Amazon planning to support devs in building their audience?
Twitch has an SDK and APIs, and the platform itself is a representation of a bunch of tools for developers to either broadcast or engage with fans.

Another programme that is very interesting is something we launched last September called Merch by Amazon. The idea was, if you have a creative IP and you want to sell physical items, we allow developers to do some designs but we do all the manufacturing, customer returns and processing payments of T-shirts.

We've seen very positive results since that launched. As a consumer, when you can bring your passion and your gaming lifestyle into the physical world, that's a big deal. We think that the physical manifestation of lifestyle gaming and having the community manifest itself in physical items is an important thing, as well. We have a host of things along these lines, with more to come – we're just getting started.

What's next for Lumberyard?
We've already announced some things that are coming soon, such as support for mobile and VR.

One of the most common requests we've hear is a way to import different asset types, so we've built an entirely new asset importer that supports FBX.

Beyond that, there's a lot of engagement happening with our customers on our forums and social media, as well as on a one-to-one basis, that is informing our future roadmap.

The way we think about it is: obsess over customers and really listen to what they want and what they see as gaps. Sometimes they're saying things that require us to make little extrapolations and build our roadmap around those things. With just a couple of weeks of feedback we're already getting a ton of great stuff and reshaping what we already had in our plans. ■

Lumberyard is free, with devs only paying if they choose to use Amazon Web Services

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SERVICES SPOTLIGHT

BUNDLE STARS

We find out how this digital retailer is helping devs get noticed on PC

Overview: Digital retailer that helps devs gain exposure by bundling their games with others on Steam
Location: Rugeley, UK
Website: www.bundlestars.com
Email: alan.wild@bundlestars.com
Twitter: @bundlestars
Facebook: www.facebook.com/bundlestars

The barriers to entry may have lowered when it comes to developing and later self-publishing games, but the barriers to success have rarely been higher.

With anyone and everyone able to release a game for PC, and the entire sector seemingly channelled through a single marketplace – Valve's ever-dominating Steam – it's no surprise developers need help getting their game noticed.

One firm believes it has the answer.

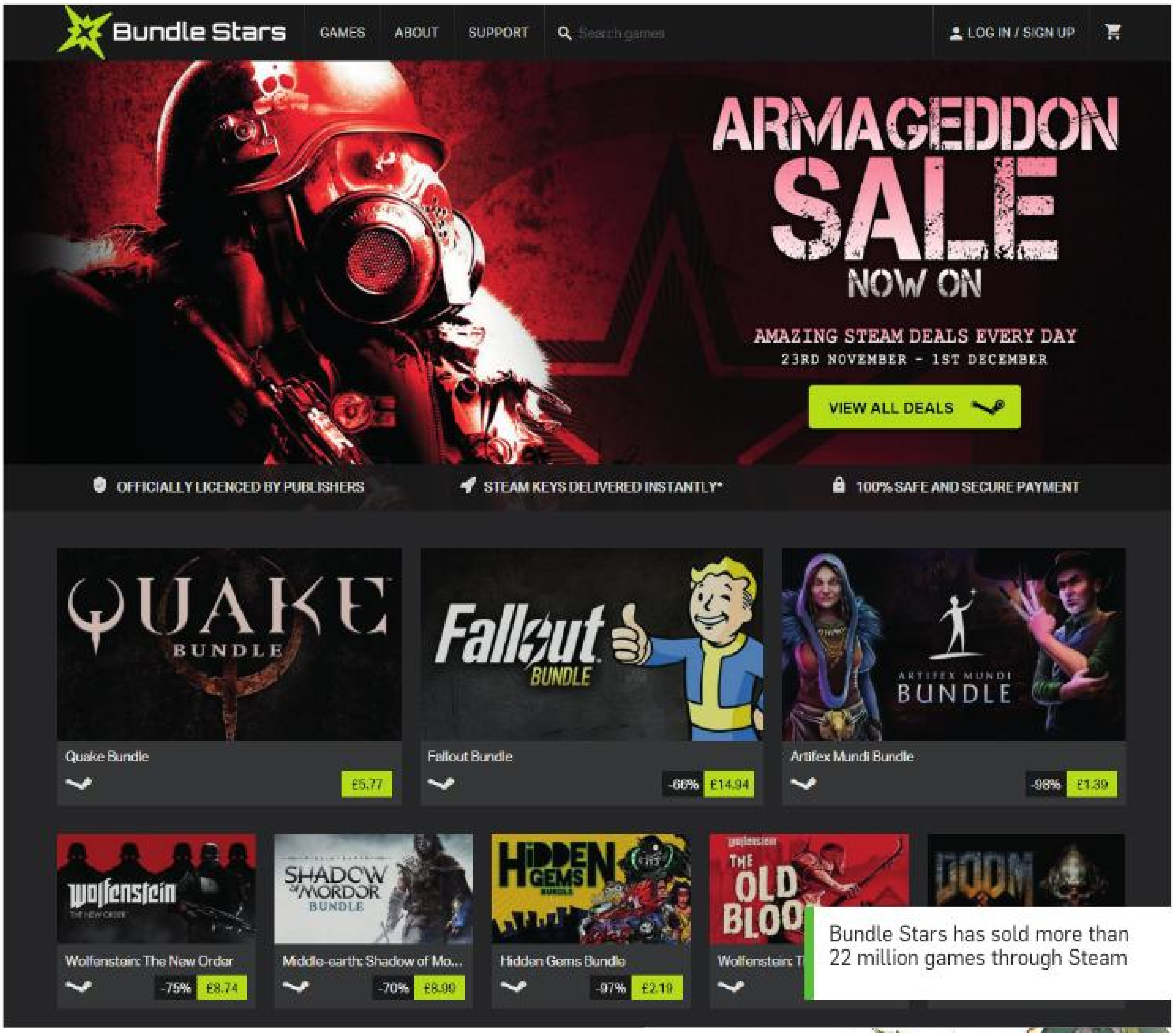
Bundle Stars is a UK-based online retailer that specialises in downloadable PC games. Since launching in 2012, it has sold more than 22m games through Steam, both as standalone titles and in limited-time bundles. But, as the name suggests, the bundles are the firm's speciality.

As consumers are becoming increasingly guarded with their disposable income, and Valve's Steam sales have trained a culture of PC owners that demand more for their money, bundling your title with other games could be the best way to get it into the hands of more players.

Bundle Stars works with a variety of developers – including big names such as Warner Bros, Codemasters, Atari, Team17, Paradox Interactive, Deep Silver and more – to offer consumers themed bundles, grouping together shooters, racers and more from studios of all types.

"In today's market it remains very difficult for game developers to get meaningful exposure and sales," head of licensing Alan Wild tells *Develop*. "At Bundle Stars, we're geared toward working closely with all our developer and publisher partners, ensuring that your title receives the coverage on our store that it deserves.

"With 73m page views in the last 12 months, and a community of 2.7m core gamers, Bundle Stars is one of the most popular digital game stores in the world. Our dedicated team delivers creative and effective marketing benefits to increase your exposure and ensure that your game gets seen."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Bundle Stars has sold more than 22 million games through Steam

The company is owned and operated by Focus Multimedia, a British PC publisher that has now been profitable for 21 years.

> **It remains very difficult for devs to get meaningful exposure and sales.**
> *Alan Wild, Bundle Stars*

As such, the Bundle Stars team is able to draw on Focus' experience of building and growing relationships with studios of all sizes, with Wild placing an emphasis on "understanding their needs and delivering long-term positive results".

Bundle Stars currently works with over 500 indie developers and triple-A publishers, most recently signing a partnership with Bethesda.

"From Apogee's *Rise of the Triad* to Zachtronics' *SpaceChem*, we've had thousands of successes – with many more to come," says Wild. "Our expanding licensing team is constantly on the lookout for new Steam games.

"We are building an army of gaming advocates and influencers across strong PC gaming territories. More reach, more brand awareness and more new customers will bring more sales for our partners."

If you're heading to GDC 2016 in San Francisco, you'll be able to find Bundle Stars at Booth 145. The company will also be part of the UKIE stand at Gamescom this August. ■

RARING TO GO

We catch up with designer and veteran dev **Gregg Mayles** to find out how Rare is following up its 30th anniversary and building a new team of ambitious games makers

For the handful of hermits who don't know who you are, tell us about Rare.

Gregg Mayles, designer: We're an eclectic and charmingly British game developer that has created many different types of games across a broad range of platforms.

What was the biggest development for you in 2015?

Letting players know what we are making for them next. Our aim was to excite new and old audiences alike with a wonderful celebration of our history in *Rare Replay* combined with *Sea of Thieves*' ambitious voyage into new waters.

Congratulations on your 30th anniversary. How would you say the studio has changed over the last three decades?

Rare has always had a chameleon-like quality in being able to change. The studio has reinvented itself many times, always with the aim of creating games to surprise and delight.

What has stayed the same?

The desire to create things our way has not diminished. The diverse games Rare has created come from them being a reflection of the people that work on them, so it's essential that the individualism and passion of our teams can shine through in what they create. We are also still in Twycross.

What are your priorities in 2016?

After the excitement of announcing *Sea of Thieves* at E3 last year, we've been beavering away to bring our pirating vision to life by turning all the ambitious fun stuff we've prototyped into reality.

Are you planning to expand?

The diverse nature of the games we work on and the constantly evolving roles within the industry often mean we have openings. Finding people who share our beliefs around how games should be created is crucial to us; so much of what makes a game great is the culture it is created in.

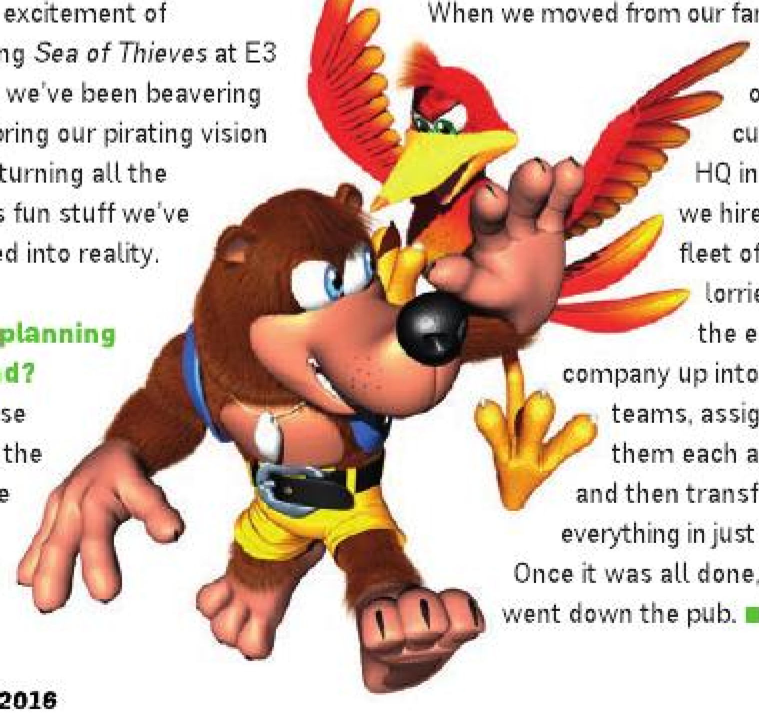
We do have a number of roles available in our engineering and art teams that can be found on our recently revamped website.

Why would developers want to work for Rare?

At around 110 people, we're small enough to ensure everyone still matters, but large enough to undertake ambitious challenges. We've got great backing and support as a first-party Microsoft studio, together with the freedom to create new experiences for players. It's probably fair to say we are a bit like the best-funded start-up on the planet.

Tell us something no-one knows about you.

When we moved from our farmhouse office to our current HQ in 2000, we hired a fleet of 7.5-ton lorries, split the entire company up into small teams, assigned them each a lorry and then transferred everything in just one day. Once it was all done, we went down the pub. ■



Location: Twycross, UK
Best known for: 30 years of classic games including *Banjo-Kazooie, Perfect Dark, GoldenEye, Killer Instinct* and *Viva Pinata* – many of which can be found on *Rare Replay.* Currently working on online pirate adventure *Sea of Thieves*
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THE ART AND SOUL OF **VISUAL DESIGN**

Campo Santo's Jane Ng, Phosfiend Systems' Richard Flanagan and Necrophone Games' Luis Hernandez tell **Matthew Jarvis** why original art assets and a defining aesthetic style can count for more than polycounts and texture fidelity

If 'a picture speaks a thousand words' and 'every frame is a painting', a five-hour game running at 60 frames per second is worth 13 million words.

This may sound ridiculous, but it highlights the importance of perfecting your game's aesthetic design; every object, texture and pixel should speak to the player.

That doesn't just mean pushing tech to its limits. Rendering every pore on a character's face is all very well, but distinctive and original visuals can often overcome any budgetary or technological limitations. For every digital Denis Peterson, there's a virtual Picasso.

"On a practical level, a stylised look that emphasises the shapes and colours of the visuals let us build the world with only two or three people on the art side," Campo Santo's Jane Ng says of *Firewatch*'s crisp lines and vivid colours.

"We focused our efforts on the individual objects and locales that have a lot of narrative value. The forest serves as a backdrop and, as long as it provides the proper emotional backbone, it is actually better to not have a ton of visual noise."

Another title to have made full use of sparing optics is *Fract OSC*. Daubed in gaudy neon, the rhythm puzzle game is reminiscent of the portrayal of virtual space in 1980s movies.

"*Fract OSC*'s visual style was inspired by early computer graphics and the quirks and beauty therein," explains designer Richard Flanagan. "The original 1982 *Tron* was definitely an influence, along with early experiments in 3D graphics and computer interface design.

"It is virtually devoid of textures, both aesthetically and from a technical standpoint. While good texturing is a real talent and art form, it is quite simply something we didn't need to spend time or money on. This aesthetic restriction helped inform a number of rules that would become our visual language and how information is communicated to the player."

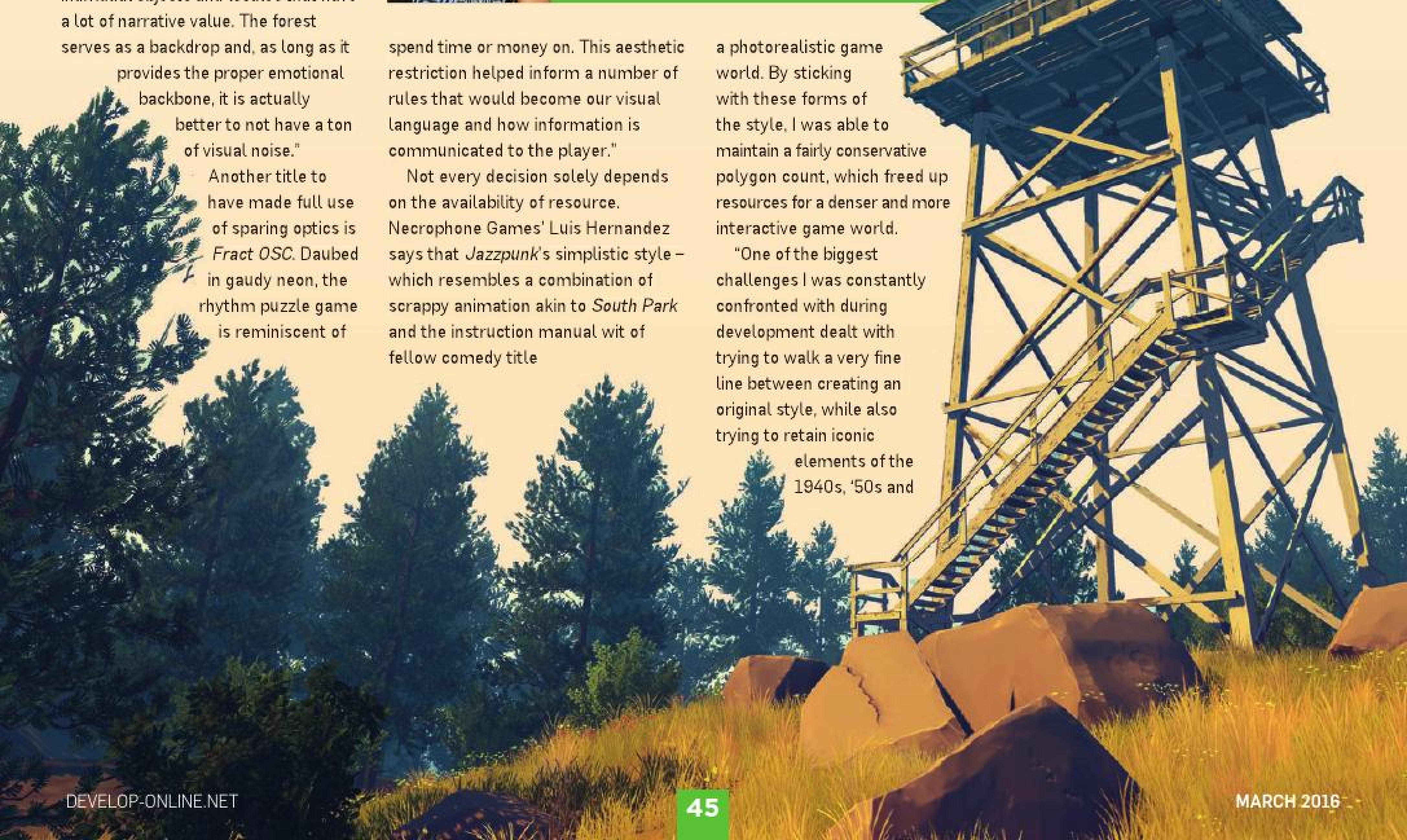
> **As long as it provides an emotional backbone, it is actually better to not have a ton of visual noise.**
> *Jane Ng, Campo Santo*

Not every decision solely depends on the availability of resource. Necrophone Games' Luis Hernandez says that *Jazzpunk*'s simplistic style – which resembles a combination of scrappy animation akin to *South Park* and the instruction manual wit of fellow comedy title *Portal* – arose from a desire to deliver the title's many jokes cleanly.

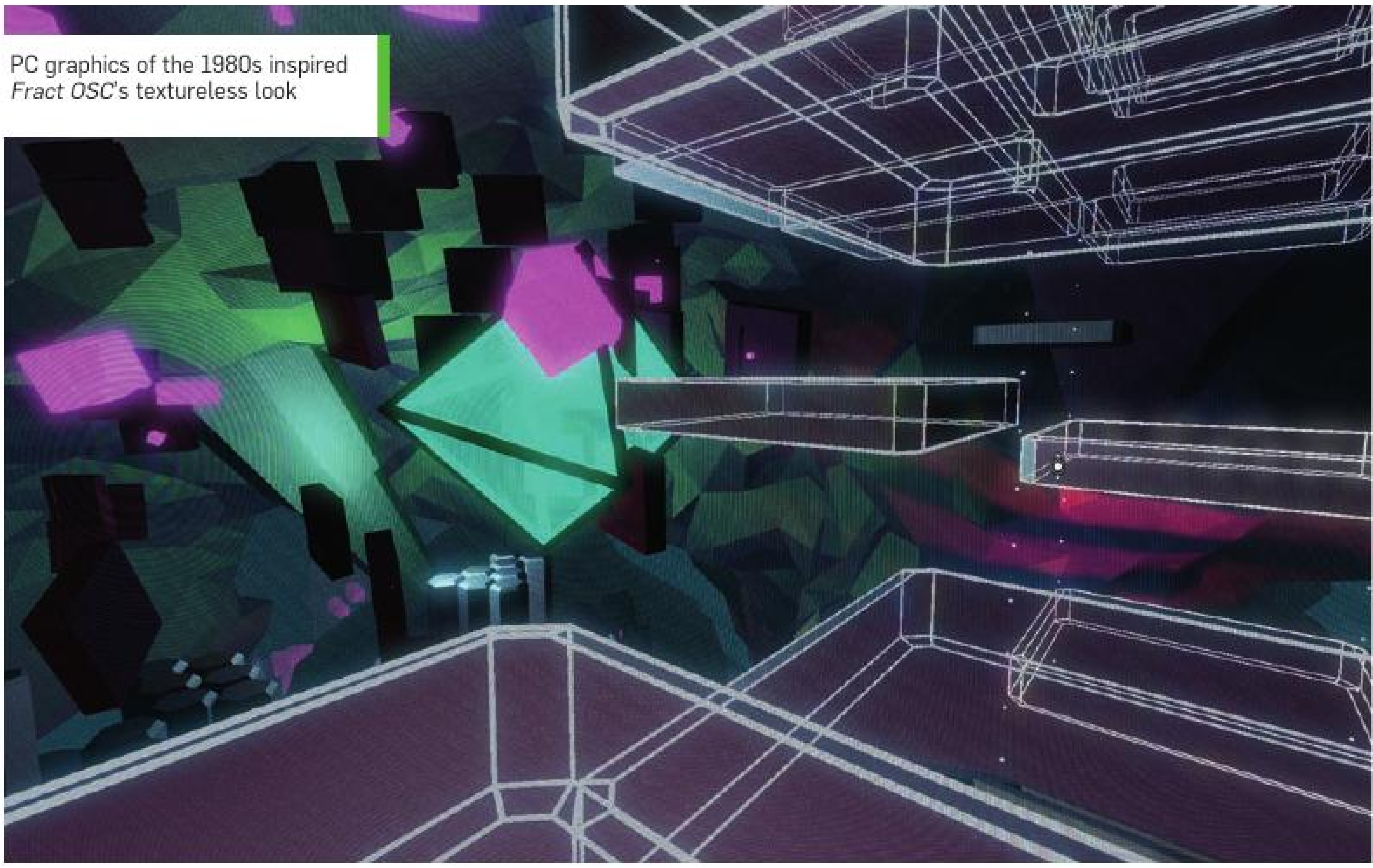
"I was fascinated with idea of distilling the game world down to a set of abstract, yet immediately recognisable, iconic forms," he recalls. "I drew a lot of influence from the Isotype designer Gerd Arntz; everyone would be familiar with these pictographs from various road traffic and hazard signs, or the fairly universal Men and Women restroom symbols. I was studying this simplified, international visual language as a means of not having to manually create a photorealistic game world. By sticking with these forms of the style, I was able to maintain a fairly conservative polygon count, which freed up resources for a denser and more interactive game world.

"One of the biggest challenges I was constantly confronted with during development dealt with trying to walk a very fine line between creating an original style, while also trying to retain iconic elements of the 1940s, '50s and '60s. Should I try to design something in a visually original and stylistically distinct way, or do I rely on the pre-established model of what those objects should look like? I ended up going with a bit of both; in one level I might reference a 1950s Eames chair directly, if it serves the idea of what a mid-century apartment should look like, or I might attempt a wholly original and bizarre chair design, if the locale allowed me some personal freedom.

"Ultimately, everything needed to be readable by a diverse audience, so for anything that was mission critical, I'd usually stick with the ideal platonic model of an object. If something was a bit more ancillary to player progression, ▶



this gave me much greater leeway in how I could exercise my stylisation experiments."



PC graphics of the 1980s inspired *Fract OSC*'s textureless look

TOOLS OF THE CRAFT

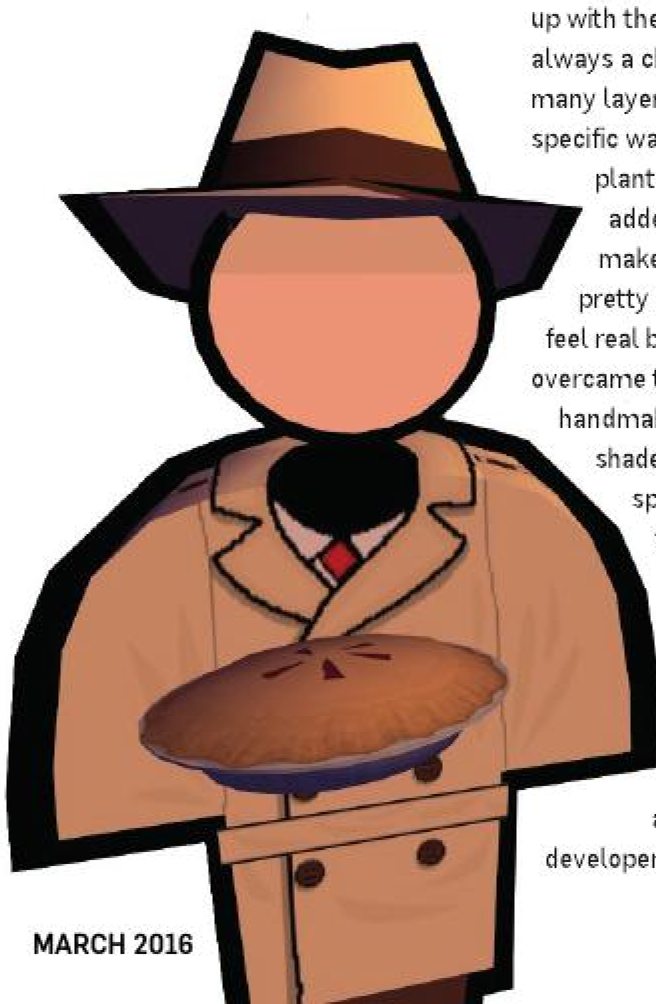
Never before have developers had such a wealth of choice when it comes to making their ideas a reality. From CryEngine and Unreal to Unity and GameMaker, the barrier to knockout visuals is now a question of how, rather than what, artists use.

"Our tools are fairly unremarkable," Hernandez says of *Jazzpunk*'s origins. "Just about all of the 2D work is hand-painted in Photoshop or Gimp. I had wanted to use Softimage for 3D modeling, but it was being phased out by Autodesk, so we ended up using Blender. Almost everything else was done in Unity."

"*Firewatch* is built with the Unity Engine," Ng echoes. "We built some proprietary Unity extensions to author our colour fog and procedural skies. We also used off-the-shelf Unity extensions such as Amplify Color and Marmoset Skyshop. Most of the 3D modeling work is done with Maya, and 2D work is done with Photoshop. We also used Zbrush for some sculpting work and Quixel's NDO for normal map generation."

Ng collaborated with illustrator Olly Moss, regarded for his use of bold hues and minimalist silhouettes. While Moss is a well-known name in the world of graphic design – he previously designed the boxart for PS3 exclusive *Resistance 3* – *Firewatch* is the first game he has directly worked on.

"The trees were really difficult to nail down," Ng says of the interplay between herself and Moss. "Olly had a very clear idea how we wanted the trees to look, and it took a long time and many revisions for the technical side to line up with the vision. Foliage in general is always a challenge because of their many layers of transparencies and the specific way you expect light to react to plants. In *Firewatch* there is the added challenge of having to make a large forest with some pretty far vistas, and that has to feel real but look stylised. We overcame the challenge by handmaking our own trees and shaders, not using any middleware, specifically for our needs over the span of a year."



Moss' involvement in *Firewatch* is just one example of other artistic mediums colliding with the world of games. The impact of movie, comics and literature is allowing developers to explore completely new avenues in the medium of interactive entertainment, with tools also bleeding across different media forms.

> **Bringing different tools to the table can help make something truly unique.**
> *Richard Flanagan, Phosfiend Systems*

"Prior to games, my art-related experience came from graphic and motion design," Flanagan reveals. "Tools like Illustrator, Cinema4D and AfterEffects employ some radically different approaches than conventional development solutions. These different methodologies can cause hiccups, but bringing different tools to the table can help make something truly unique."

Yet, games don't just have to be designed using the most bleeding-edge tools. Hernandez's lo-fi development methods saw him move away from the keyboard and take a more hands-on approach – literally.

"I remember at one point, being frustrated with trying to plot out many of the 2D compositions with traditional vector software, ending up printing out lots of stencils for various geometric shapes onto paper stock and cutting them out with an X-Acto knife," he recalls. "Then I had tons of these cut-out shapes and could quickly arrange and re-arrange by hand on a giant board. This allowed me to work more intuitively with my hands, and I was able to map out more complex compositions that I could have in software."

REDEFINING REALITY

New mediums inside the realm of games are having just as transformative an effect on visual design as those outside. Most notably, virtual reality looks set to completely refresh developers' understanding of how to approach the appearance of in-game assets.

"We've all become desensitised to many of the jarring inconsistencies that are present, in even the most realistic and cutting-edge games," Hernandez criticises. "VR has a bad habit of snatching up these problems that we thought we'd solved as an industry and amplifying them. The idea that we can replicate a photorealistic work in VR is still quite far away.

"I'd wager the short-term success of VR will come from experiences that trade on its ability to create strange, surreal or stylised worlds, rather than attempts at photorealism."

Flanagan agrees that VR will catalyse developers to squeeze the most out of their artistic ability.

"I suspect we'll start to see less photorealistic games," he predicts. "I see this adoption of stylised visuals as being ▶

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the result of a few different factors: a deliberate design choice as designers become more confident in their creativity, a sizable technical consideration as achieving photoreal in VR is more computationally expensive, and a widening of the uncanny valley as VR evolves."

Like Flanagan, Ng sees the higher hardware needed to power headsets such as the Oculus Rift and HTC Vive as an agent for change when it comes to design sensibilities.

"A lot of techniques taken for granted in traditional game art behave very differently in VR space," she observes. "For example, normal maps aren't very believable close up in VR, and one's approach to lighting has to totally change because lights and shadows are very expensive."

MAKE IT YOUR OWN

It's very easy to encourage devs to polish up their visuals but, as with all artistic efforts, much harder in practice. So, where exactly should you start?

"Use style to your production advantage," Ng advises. "Prioritise and invest your production efforts in assets that will give you the most payoff in terms of player experience."

She adds that veering off the well-trodden paths of game design can become much easier with the guidance of a completely new voice.

"Working with Olly has been great because a lot of us long-time specialised game artists can get stuck in what video games can look like," she says of her own experience. "On one end you have people who are very focused on pushing what the newest shaders can do to make a game more 'realistic', and on the other you have people who are, for example, really enamored with how games used to look. On top of that, one also gets comfortable with certain ways of technical implementation – which funnels a game into a certain look as well."

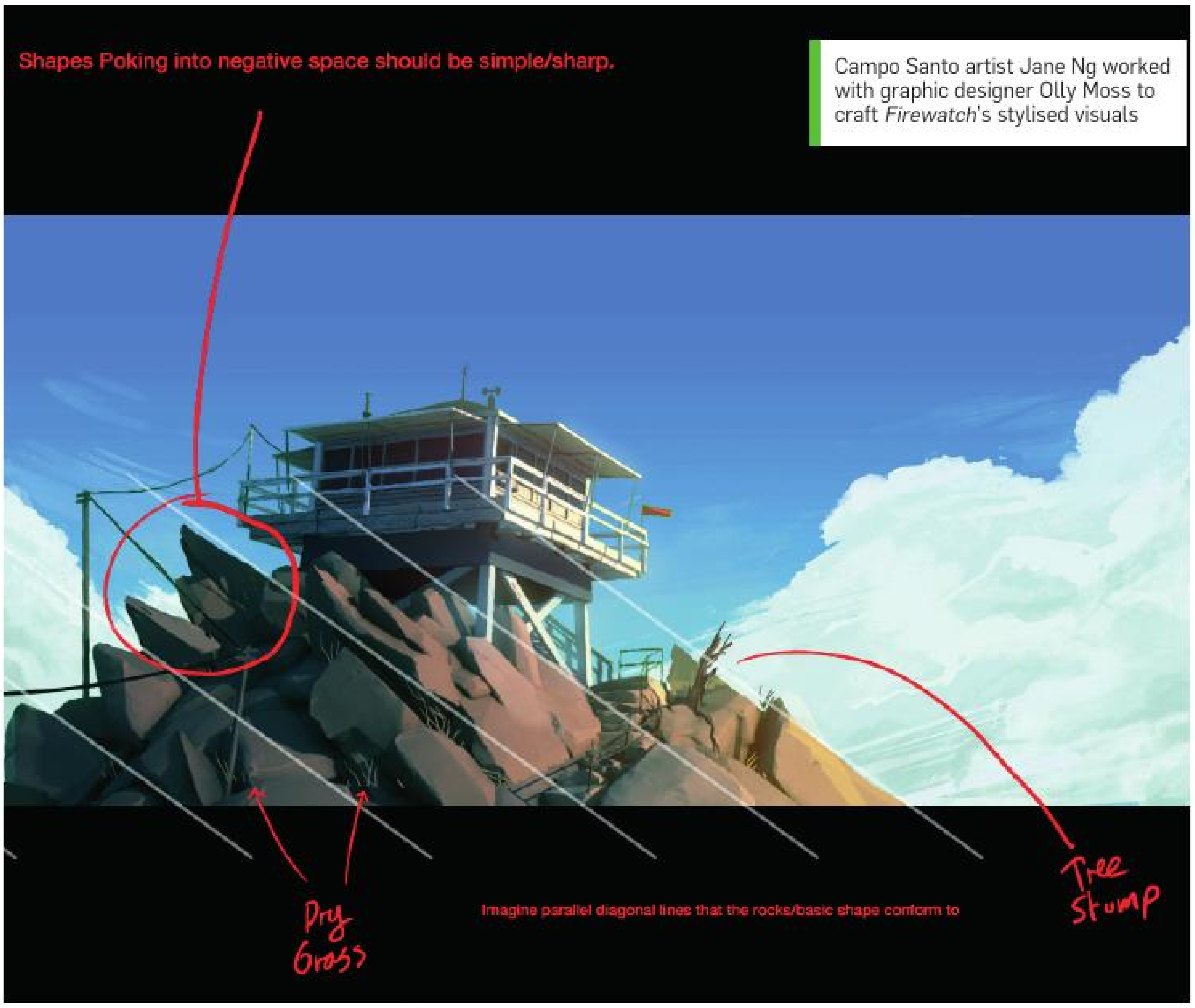
Hernandez suggests that more developers should consider the very appearance of their creation as just as necessary to innovate in as factors such as gameplay and narrative.

"It's hard for me to decouple the idea of a game having a unique aesthetic, without the game itself having been conceived as a distinct, interactive experience," he states. "I wouldn't suggest throwing resources at a distinct visual style unless you intend to marry this with a fresh take on a genre or something equally outlandish and new. Otherwise, we're back to throwing a fresh coat of paint onto the same old house."

Flanagan reiterates that emphasising impactful style over technological substance ultimately results in art that pushes the industry forward.

> **Don't throw resources at a distinct visual style unless you intend to marry it with a fresh take on a genre.**
> *Luis Hernandez*

"We could use a break from polygons, meshes and vertices," he advises. "Parametric tools and engines would not only shake up the way we make our games look, but how we approach making them in general. I would just love to see some radically different approaches to content design, creation and implementation make their way into the tools and culture." ■


Shapes Poking into negative space should be simple/sharp.
Dry Grass
Imagine parallel diagonal lines that the rocks/basic shape conform to
Tree Stump

Campo Santo artist Jane Ng worked with graphic designer Olly Moss to craft *Firewatch*'s stylised visuals

INSPIRING WORK

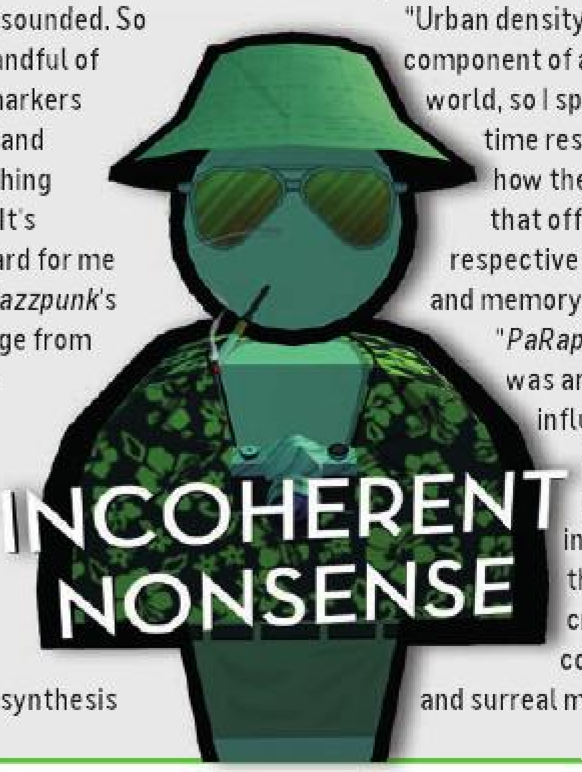
Luis Hernandez, co-founder of Necrophone Games, reveals the musical origins behind Jazzpunk

"I distinctly remember the first night where I began sketching out the concept art for *Jazzpunk*. I was listening to some 'hot' latin jazz, and felt frustrated that I'd never seen a game that looked as colourful as this music sounded. So I grabbed a handful of the loudest markers I had on hand and started sketching to the music. It's often quite hard for me to separate *Jazzpunk*'s visual language from its aural one.

"I would describe *Jazzpunk*'s style as Mid-Century cyberpunk; its visual language is a synthesis of styles from various places and artists. I'd always been incredibly impressed by the environmental density achieved in games like *Jet Set Radio* and *Katamari Damacy*. They depended on a very clever polygon economy and judicious use of texture real-estate, and managed to replicate the real feel of a sprawling Japanese metropolis.

"Urban density is a key component of a cyberpunk world, so I spent a lot of time researching how they pulled that off within their respective hardware and memory limitations.

"*PaRappa the Rapper* was another subtle influence, I liked the meshing of 2D sprites in 3D space, and the synesthesia created by its colourful world, and surreal musical style."



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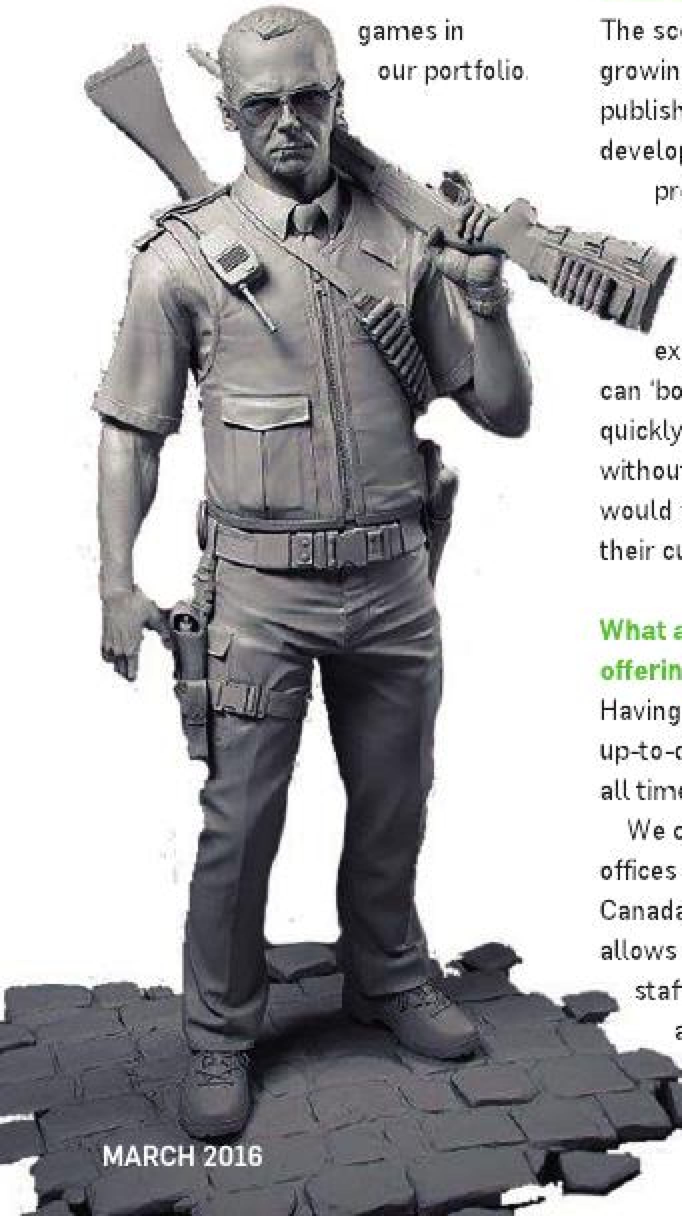
SECRET SOURCE

Sperasoft CEO **Igor Efremov** reveals why the changing face of development is providing a fertile environment for studios to outsource work to other specialists

What is the current state of the outsourcing sector like?
It's buoyant and business is growing. Games are bigger, there are more platforms and a large majority of games have a large volume of content, DLC and ongoing support, so there are just physically more jobs for an outsourcing development studio to do.

Studios are always looking for ways to control costs, and there is a constant push globally to find lower cost options. However, we are finding that it is becoming much more important and attractive to our clients to complete projects at a high quality and with more complexity, versus lowest price. We have begun shifting to offer services that are more complex and multi-faceted rather than just artists or engineers.

What projects have you been working on recently?
We have worked on *FIFA*, *Dragon Age: Inquisition* and *League of Legends*, to name a few. We feel very proud to list those incredible games in our portfolio.



What attracts you to work on a particular project?
We are attracted to work on quality products no matter what the genre or platform. Quality is the thing.

> It is becoming much more important to complete projects at a high quality, versus lowest price.
> *Igor Efremov, Sperasoft*

This also provides our developers a unique opportunity to work across a wide variety of games and that's important for them and something they are passionate about.

We operate our offices like a triple-A game developer – this means providing varied opportunities to work on interesting and unique game IP.

What are the benefits of outsourcing?
The scope and scale of gaming is growing and this puts pressure on publishers. A good outsourcing development studio can elevate that pressure, help the publisher to focus on what they excel at and fill in the gaps.

We are a fully-formed experienced team that publishers can 'bolt on', allowing them to staff up quickly with world class developers without all the complications they would face having to do that within their current structure.

What are the challenges of offering outsourcing?
Having the best developers who are up-to-date in the latest technologies at all times.

We counter this challenge by having offices all over the world, in America, Canada and Eastern Europe. This allows us to recruit the very best staff, wherever they may be. It also allows us to take advantage of creative developer hotspots.

Do the tools and technology you use vary from project to project?
Our working methods differ per project; we like to offer bespoke solutions to suit each client and each game.

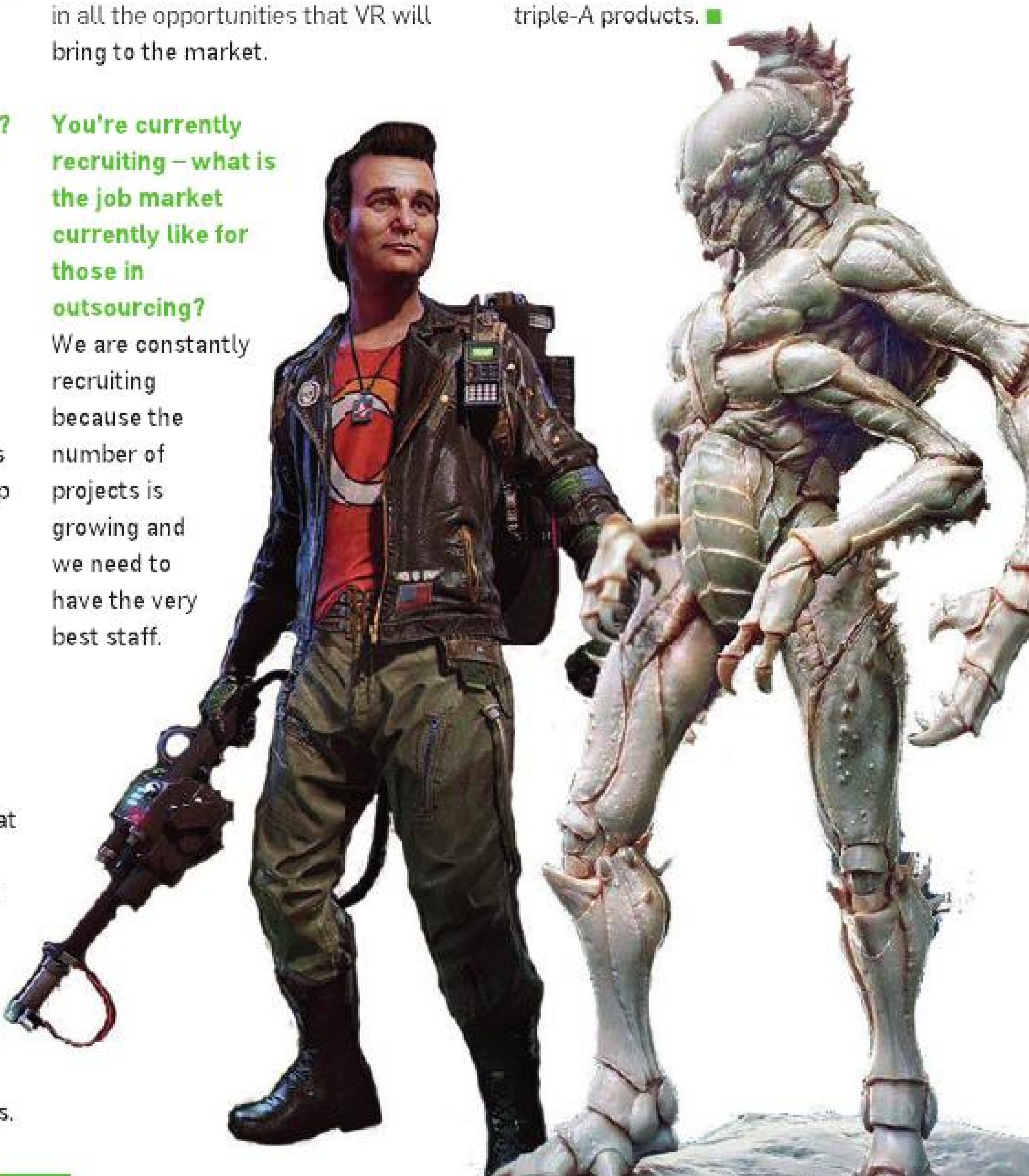
But the games industry is never boring. We constantly face new interesting new challenges. It's very cool to be at the cutting edge of development, with new stuff constantly round the corner – for example, we have been very interested in all the opportunities that VR will bring to the market.

You're currently recruiting – what is the job market currently like for those in outsourcing?
We are constantly recruiting because the number of projects is growing and we need to have the very best staff.

This means we are always on the lookout for fresh talent in our multiple locations. Last April we opened our Krakow office, and we have plans to grow that to 100 staff this year, so that is an ongoing job.

What are the key pieces of advice you have gathered from your time assisting different studios across multiple platforms and genres?
It takes a lot of people with a lot of different skills in different places in the world to make a great game, so focus and communication are really key.

We have a unique approach that allows us to sprinkle Western leadership and talent throughout our offices of highly experienced devs, resulting in teams of people who have delivered massive platforms generating $3 billion a year and shipped $200 million in triple-A products. ■



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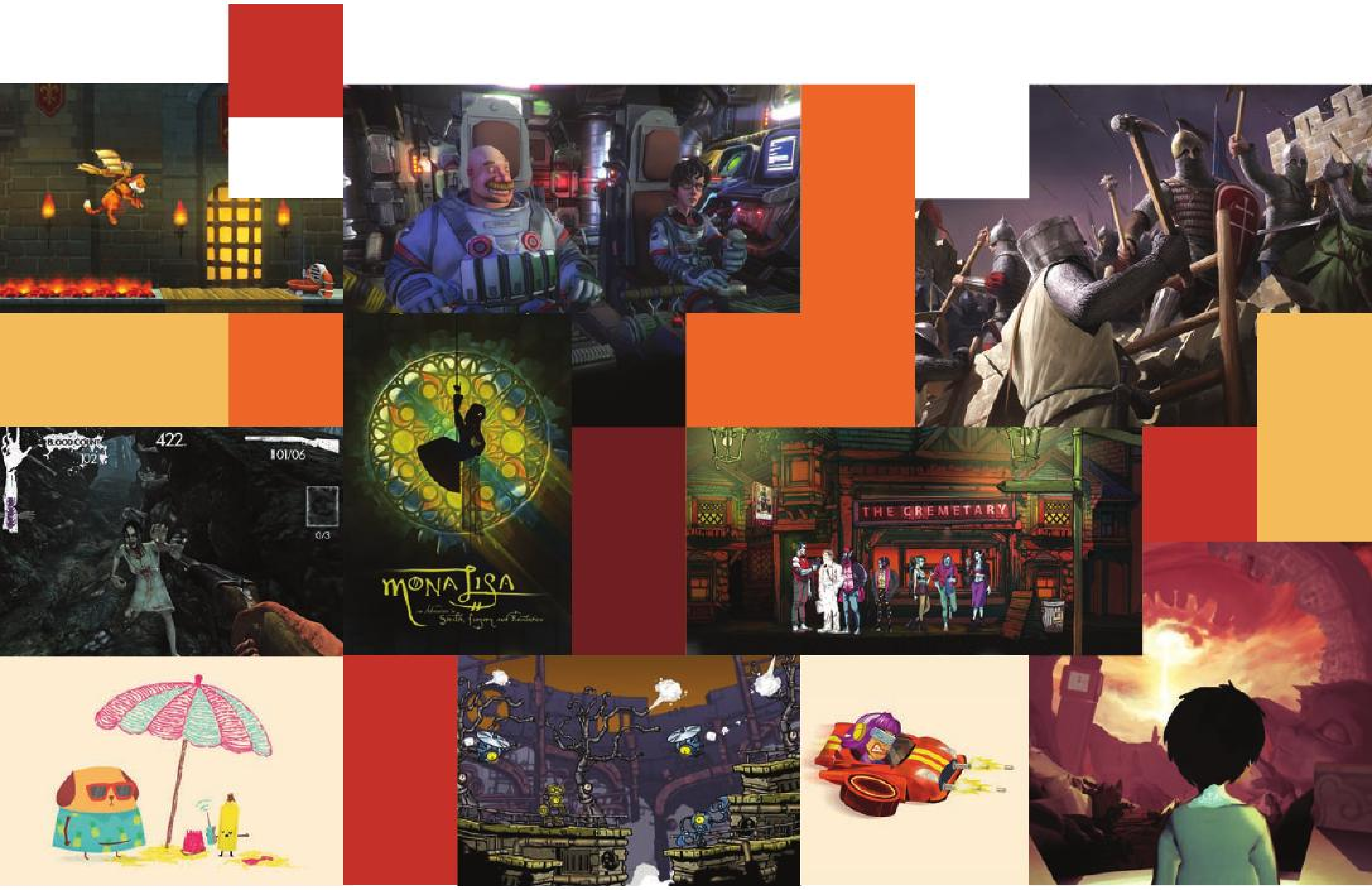
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MOVERS AND SHAKERS
Bungie, Beamdog, Playtonic and Sony
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TITAN CALL
Respawn Entertainment on staffing up to surpass *Titanfall*
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DEAD SET
Dead Rising studio Capcom Vancouver sits in the Recruiter Hot Seat
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Development Kit 2

'VR WILL TRANSFORM THE GAMES JOBS MARKET'

Testers and designers among those set to adopt specialist skills and be in hot demand among studios

The impact of virtual reality will see the creation of completely new jobs in the development sector, as existing positions expand their skillsets to embrace the nascent medium.

Rebellion CEO and TIGA chair Jason Kingsley tells *Develop* that the launch of the Oculus Rift, PlayStation VR and HTC Vive during 2016 could change the established structure of studios.

"The success of VR might mean new jobs and job titles being created with that are completely unfamiliar to us today, and their skills will be different too," he predicts. "We're finding that some people in our QA team, for example, are more comfortable being in VR for longer than others. Is that a 'skill' VR games companies will demand or recruit for in the future?"

Katie Goode, creative director at Triangular Pixels, speaks of her own experience making the leap to VR development – and encourages more devs looking for a new role to consider jumping to the platform.

"We wouldn't have felt the need to leave our safe jobs to do our own thing if VR wasn't such a promising area," she recalls. "We knew that it was becoming very hard to get noticed in the mobile and online PC games markets, but if we did something special in VR, that'd give us the edge."

Kingsley highlights testers and QA workers specialised in VR as an increasing valuable commodity as more titles adapt to the unfamiliar technology.

"We need people we currently call 'canaries'," he explains. "These are game testers who seem to be particularly sensitive to projection errors in 3D, and we need them because they help make VR projects more comfortable for the end consumer.

"What's really interesting is what will happen when we're confident enough not just to make VR games as we do currently, but actually make games in VR the whole time. Will these VR developers have an advantage over or need to think differently to games developers who work off a 2D screen?"

> **Adding VR to your CV shows you can problem-solve, learn and be efficient in pretty much any job role.**
> *Katie Goode*

With virtual reality presenting unique challenges for even experienced devs, Goode says that specialised VR skills will help existing creators to exhibit the best of both worlds.

"A 'VR designer' seems to be a role now: a person that looks out for users, knows what can cause them to feel uncomfortable, how to make the virtual world feel solid and real and how to draw users' attention when they can be looking anywhere," she observes.

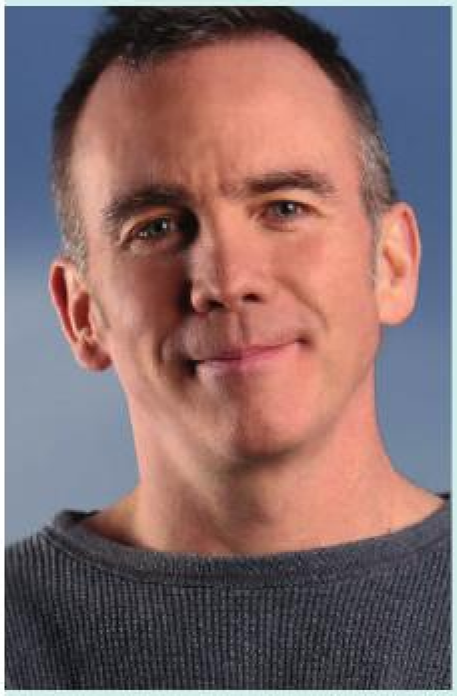
"For programmers, companies need their skills of being able to shave off a few milliseconds for a frame, to implement a complex system in an efficient way to run in frame on mobile devices, work with new SDKs and more. Similarly, for audio and visual, there are techniques they need to know.

"To be able to add VR to your CV shows that you can problem-solve, learn and be efficient with your work in pretty much any job role.

"If you are in the games industry at the moment, working on VR and looking to move on, you are in an incredibly strong position to change the industry based on your experience." ■

MOVERS AND SHAKERS

The latest high-profile hires and promotions



BUNGIE

Destiny developer Bungie has promoted **PETE PARSONS** to CEO.

His appointment follows the departure of Harold Ryan, after 15 years at the company. Parsons was previously Bungie's COO.

"As a team, we have celebrated many victories and weathered many storms," Parsons commented.

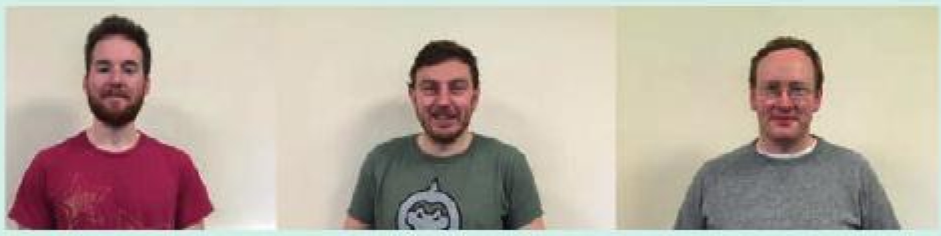
"I believe that *Destiny* is a one-of-a-kind experience. I also believe you have yet to see our studio's best work. My new role here at the studio will be entirely focused on fulfilling that promise."

BEAMDOG

Former BioWare veteran **DAVID GAIDER** has joined the *Baldur's Gate: Enhanced Edition* studio,

Gaider wrote for several series including *Dragon Age* and *Star Wars: Knights of the Old Republic* during his 17-year tenure at BioWare.

He joins Beamdog as creative director, leading the writing team.



PLAYTONIC

The *Yooka-Laylee* studio has bolstered its ranks with another two ex-Rare devs.

Environment artist **DAMIEN SPARKES** (*above, right*) and animator **GARY TALBOT** (*above, middle*) formerly worked on *Banjo-Kazooie* and *Perfect Dark*.

They are joined by **HAMISH LOCKWOOD** (*above, left*), a designer with credits on *Stealth Inc* and *Volume*.

SONY LONDON STUDIO

Studio head **DAVE RANYARD** has departed the PlayStation VR outfit after 17 years.

Ranyard contributed to titles including *Street Luge* and *The London Heist*, as well as *The Getaway*, *Singstar*, *Eyetoy* and *Wonderbook*.

He leaves to pursue opportunities in VR and indie development.

PRODUCER OF THE MONTH

This month, we speak to Tymon Smektala – ex-rapper, former journalist and now producer at Dying Light developer Techland

Regular *Develop* readers will know we regularly interview producers. Games journalists, less so. Rappers? Definitely not. But Techland's Tymon Smektala provides us with all three in one package.

Smektala previously enjoyed a career as a performer and rap artist, releasing three albums and a mixtape – including one devoted to discussing sex.

"It was a comedy album," he's quick to point out. "Most of my music was what I'd like to think of as 'urban poetry' – my observations on where I lived, my life and being a twenty-something guy. There was no bling and no 'bitches'."

At the same time, Smektala was editor-in-chief of *CD Action*, Poland's biggest games magazine. After working there for nearly 15 years, he was headhunted by Techland.

"Techland realised that I was based in the same city as them," he says. "They asked if I'd be interested in working there. I was looking at where to go next, questioning if I wanted to do another 10 years as a games journalist, so the timing was perfect."

The first month at Techland was "like a honeymoon", according to Smektala. The next two months were harder: "I realised that, although I knew about games and the industry, I knew nothing about how to make a game.

"Moving to Techland was the making of me on many more levels than simply learning a new career. It has made me a better person – I learnt how to listen more, how to interact better with people."

There were, of course, some unique skills that Smektala brought to Techland, given his career past.

"I think I am a strong, creative person, so I brought that to the business. The industry needs creative people – even if their background is in a different sector."

Smektala's performance during his time at Techland has impressed, with him taking the lead producer and lead design roles on the first *Dying Light* expansion, *The Following*.

"This has been my biggest achievement so far," he enthuses. "Having come from that early start at Techland where I was given the opportunity by game director Adrian Ciszewski to learn the ropes, he then gave me the responsibility for heading up *The Following*. And I didn't mess it up."

No word on a new album, though. ■

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DIVIDE AND CONQUER:
THE NEXT STEP FOR RESPAWN

Spurred by the success of Titanfall, Respawn Entertainment is gearing up its workforce for a follow-up to the robotic first-person shooter – as well as something completely new. HR and recruiting manager Kristin Christopher tells **Matthew Jarvis** who will fit the bill

Before it even launched its debut game, Respawn was one to watch.

The studio was founded in early 2010 by Jason West and Vince Zampella, the brains behind *Call of Duty*, who were quickly joined by the majority of staff from the pair's former outlet, Infinity Ward.

Nearly six years on, Respawn is more than just a promising start-up; it has the positive critical and commercial momentum of 2014's *Titanfall* under its belt, and has already confirmed work on a sequel. It's also cooking up something fresh, in the form of an unannounced third-person action-adventure IP.

"Respawn is growing from a one game, one team studio to a two game, two team studio," HR and recruiting manager Kristin Christopher tells *Develop*. "A while back we hired Stig Asmussen – formerly with Sony, where he was director on *God of War 3* – to direct a new game for us.

"The team is currently small, but as they prepare to go full-force into development there will be many more positions that open up. I could see us hiring up to 70 more people to support that game, not counting other roles in the studio. It is a really exciting time."

TITAN CALL

This year's hires are a major step-up for the relatively young studio, as it prepares to significantly boost its workforce for the first time since its inception.

"After we built the team that made *Titanfall*, we generally didn't have a pressing need to actively recruit much," recalls Christopher. "Although we have been hiring slowly and deliberately, this will be a big recruiting year for us as more and more roles become necessary."

> “We're growing to a two team studio.
> *Kristin Christopher*

With so many veteran developers among its ranks, the prospect of joining Respawn may be intimidating to industry newcomers. Christopher offers her assurance that it's talent – rather than time – that counts.

"What makes Respawn so great is the quality of our team," she enthuses. "We hire people who are smart, proactive, great at what they do and who get things done. We also hire for character and culture fit – we want to work with people we like. We find these qualities in both candidates who have many years of experience and those who have very little. The result is that there is no dead weight here. Our team members can rest assured that the person sitting next to them is delivering great work."

THE TINY GIANT

Respawn is an indie studio working under the guise of a triple-A outlet.

Although *Titanfall* was published by EA, the IP belongs solely to Respawn. It's a distinction that Christopher says reflects the developer's philosophy when it comes to incubating new ideas.

"Although we make triple-A games, our teams are on the smaller side compared to other triple-A developers," she explains. "We had about 70 developers on the original *Titanfall* and we currently have about 90 working on the sequel. We expect our new team to grow to a similar size.

"We offer the appeal of an indie studio where there is a chance to make your mark, combined with the opportunity for blockbuster-level success."

It's this dedication to innovation that Christopher insists marks Respawn as a studio fit for long-time creators and fresh-faced developers alike.

"We believe great design ideas can come from anyone," she says. "As such, everyone in the company has an opportunity to contribute and have a voice when it comes to making the game great." ■

Respawn is hiring for most development roles this year at its Los Angeles offices, with the highest current priority openings including software engineers, level designers, systems designers and animators. Visit **www.respawn.com** or send a resumé to **jobs@respawn.com**.

GET THAT **JOB**

This month: **Creative Producer** with Bulkhead Interactive's Howard Philpott

What is your job role?
Leading the team's artistic direction and marketing campaigns across multiple projects and occasionally assisting with smaller areas of design.

What qualifications and/or experience do you need?
I'm going to sound pretty rock 'n' roll here but, in all honesty, you don't need a specific qualification to become a creative producer.

Experience, on the other hand, is essential. Any relevant degree will always be a bonus for your CV, as education fosters creativity and personal development, but the role of creative producer encompasses such a wide array of roles that you could never gain from one specific qualification.

If you're a creative person that's always creating things with a passion for what you do, you will naturally gain the experience needed for the role.

How would someone come to be in your position?
Surround yourself with creative people that have drive.

I was lucky enough to be able to develop my artistic skills through my education and have always had my own side projects to manage when growing up. So, when I found myself working with other like minded people, I naturally found myself fitting into multiple roles to cover all the areas that needed to be covered.

Make your own luck by looking out for opportunities and have the drive to get involved when an opportunity arises – even if it means working under your pay grade for a while.

If you were interviewing someone, what do you look for?
We have always had a policy that the potential hire has to have experience working as a part of a team.

> **If you want to carve out your own piece of gaming history, aiming to become a creative producer isn't a bad choice.**
> *Howard Philpott, Bulkhead Interactive*

Your skills are your value to a company but if you can't work and collaborate with others you may as well be working on your own.

What opportunities are there for career progression?
If you've got the skillset and the drive to get hired by a games company, you'll be able to work your way over the years from a junior role to lead artist or creative producer in a traditional games environment.

Why choose to follow a career in your field?
Games as a medium are evolving year-on-year in every aspect, from interactive design and story to sound and visuals. There's a constant pressure to keep up with the ever-changing developments and be ahead of the curve, which in turn fuels creativity across everyone working within the industry.

If you want to help carve out your own small and unique piece of gaming history through your work, then aiming to become a creative producer isn't a bad choice to follow.

SKILLS AND TRAINING

This month: Game designer Theo Beale has launched an online course called DevGame, aimed at everyone willing to get a job in the video games industry

Budding developers have been offered another route into the games industry.

It is called DevGame and is adapted from a course Alpenwolf lead game designer – and former *Develop* columnist – Theo Beale has taught at the SAE Institute in Zürich.

The online course consists of 10 two-hour sessions.

"My goal in teaching the course is to help people decide if the game industry is for them or not without having to spend years of their lives or thousands of pounds in the process," explains Beale, who has more than 25 years of experience in the industry.

"The problem, as I see it, is that because so few of the people involved in teaching game development have ever worked in the industry, they can only teach the technical skills involved, and are not prepared to address the more important elements that tend to play a more important role in one's ability to succeed in the industry," he adds.

The course includes production, design and history of games lectures.

> **Because so few of the people involved in teaching game development have ever worked in the industry, they can only teach the technical skills involved.**
> *Theo Beale*

"I even give the course attendees the chance to work on a small game project during the course so they can see what the experience is like," says Beale.

"Many of them are astonished at the amount of time and effort involved.

"There are 108 registered attendees and they range from veteran programmers to teenage artists," he also points out. "There are no requirements to join the course beyond an interest in learning about the games industry."

The game designer intends to hold three courses per year: the first session is currently ongoing and the next two will begin in May/June and September/October.

Overview: The 10 two-hour sessions of DevGame cover all aspects of game development (technology, design, production, art, game mechanics) and include a brief history of games. Attendees will also work on a game project during the course.
Course price: $199 (£138)

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RECRUITER **HOT** SEAT

Kevin de Leon, studio recruiter at Capcom Vancouver, reveals the studio's hiring plans in 2016 and why aspiring devs should consider the Canadian home of Dead Rising for their next job

What differentiates your studio from other developers?

We are big, but not too big. We have the best of both worlds in that we are backed by Capcom, a huge global company, but Capcom Vancouver has only 230 staffers working on two triple-A titles. Each team is small enough to maintain a sense of ownership. No one is a proverbial cog in the wheel – everyone counts.

How many staff are you looking to take on?

We have about 30 open roles right now and may add a few more to that list.

What perks are available to those working at your studio?

We have an excellent benefits plan that is available to new hires from day one of employment and even RRSP matching after a period of time, which is not very common anymore.

As far as the day-to-day is concerned, we are treated to fresh fruit every day, bagels on Monday and monthly birthday cake celebrations. We also get treated to nice lunches such as food trucks we hire, or by us firing up the BBQs and cooking our own hot lunches.

In our staff lounge we have a great games library stocked with the latest titles and an old arcade machine with hundreds of old-school games such as *Street Fighter 2*, *Space Invaders* and *Pac-Man*. Friday afternoon is always Happy Hour in our on-site pub, complete with our own moose head on the wall. Truly Canadian, eh?

What should aspiring devs do with their CV to get an interview with you?

A great resume is easy: keep it clean, easy to read, show what you are great at and what you have done so far in your career. Share what makes you unique with a short sentence about yourself. List your core competencies. Show that you have experience with the tools and software that we are looking for – list it even if you are not an expert. If you are a designer or an artist have your portfolio as up-to-date as possible.

Who is the best interviewee you have ever had?

In general, things that always impress are people who have played our titles and are real games or Capcom fans.

Also, people who come well prepared and have put some thought into how they are going to tell their story to the interviewers always do well.

And who was the worst?

The worst interviews are with those applicants who come ill prepared and cannot effectively communicate how they would be a good hire for the studio.

> No one is a proverbial cog in the wheel – everyone counts.
>
> *Trant Lee-Amies*

What advice would you give for a successful interview at your studio?

Come prepared. You don't have to play our games, but at least look at them online. Understand what Capcom and Capcom Vancouver are all about.

CURRENTLY HIRING

Company: Capcom Vancouver
Location: Burnaby, Canada
Hiring: Producers and designers, artists, as well as a director of product development, a lead cinematic animator and a software engineer
Where to apply:
capcomvancouver.com/careers

If you have recruited internationally, what is the process like?

Longer – expect a lot of video interviews.

We have hired internationally and have a very diverse and international studio. We like to leverage the experiences that someone brings from another country.

How have your recruitment needs changed at your studio?

We hire veterans from the game industry that have proven records, as well as junior staff bringing fresh ideas into the studio.

Recently we announced that we will begin working with Epic Games to utilise Unreal Engine 4 for our upcoming projects. We've had years of success with the award-winning *Dead Rising* franchise, and we've taken that experience and applied it to exciting new projects.

Why should developers join you when indie and self-publishing have become so much more accessible?

Nothing worth doing or having ever comes easily. Getting hired at Capcom Vancouver might not be easy, but it is certainly worth the effort.

We are an open and transparent studio. We share information, tell staff where we are going and everyone is part of the journey. We take risks, set lofty goals, and work hard together to get it done.

All this potential, growth and career stability is why Capcom Vancouver is a unique games career choice right now. ■

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THE **VAULTING** DEAD

In Dying Light, the recently deceased aren't just walking: they can scale buildings, jump fences and more. Luckily, so can the living. **Matthew Jarvis** chases down lead designer Maciej Binkowski and lead programmer Bartosz Kulon to discover how they implemented first-person parkour movement

The debate over whether zombies should run or walk is an argument for the ages. What's scarier: the unstoppable flood of drifting corpses à la *Dawn of the Dead*, or the sprightly infected seen sprinting in *28 Days Later*?

What can be agreed upon is that once the recently risen learn to climb, humanity is doomed. It's a nightmare scenario that Techland decided to explore in 2015's *Dying Light*, allowing the dead to clamber up buildings and over fences. Fortunately, player character Kyle Crane is similarly gifted, making the most of his ability to climb, leap, slide, zipline and grapple across the open city of Harran to stay out of harm's way.

"When we sat down to envision what *Dying Light* was going to be, freedom of movement was on top of the list and stayed there throughout," recalls lead designer Maciej Binkowski. "Therefore, things like level design, object placement, mission design and even combat were all being built around the movement system.

"It came from our hope to take first-person perspective movement in open-world games beyond what was already out there. We know there were first-person games with big open worlds before *Dying Light*, but many parts of these worlds were off-limits – interiors, rooftops and so on. It often led to feelings of frustration; for example, when your epic hero couldn't even jump over a knee-high fence and ends up being cornered. Yet a person in real life could have easily just jumped that fence.

"We also wanted a system that encouraged a 'survival' playstyle. In a real zombie apocalypse, what would most people do? They'd choose their fights wisely. They'd run away if need be. They'd try to get to higher ground. So freedom of movement let us design the game with that choice built in. It was 'fight or flight' – and not just one or the other on repeat."

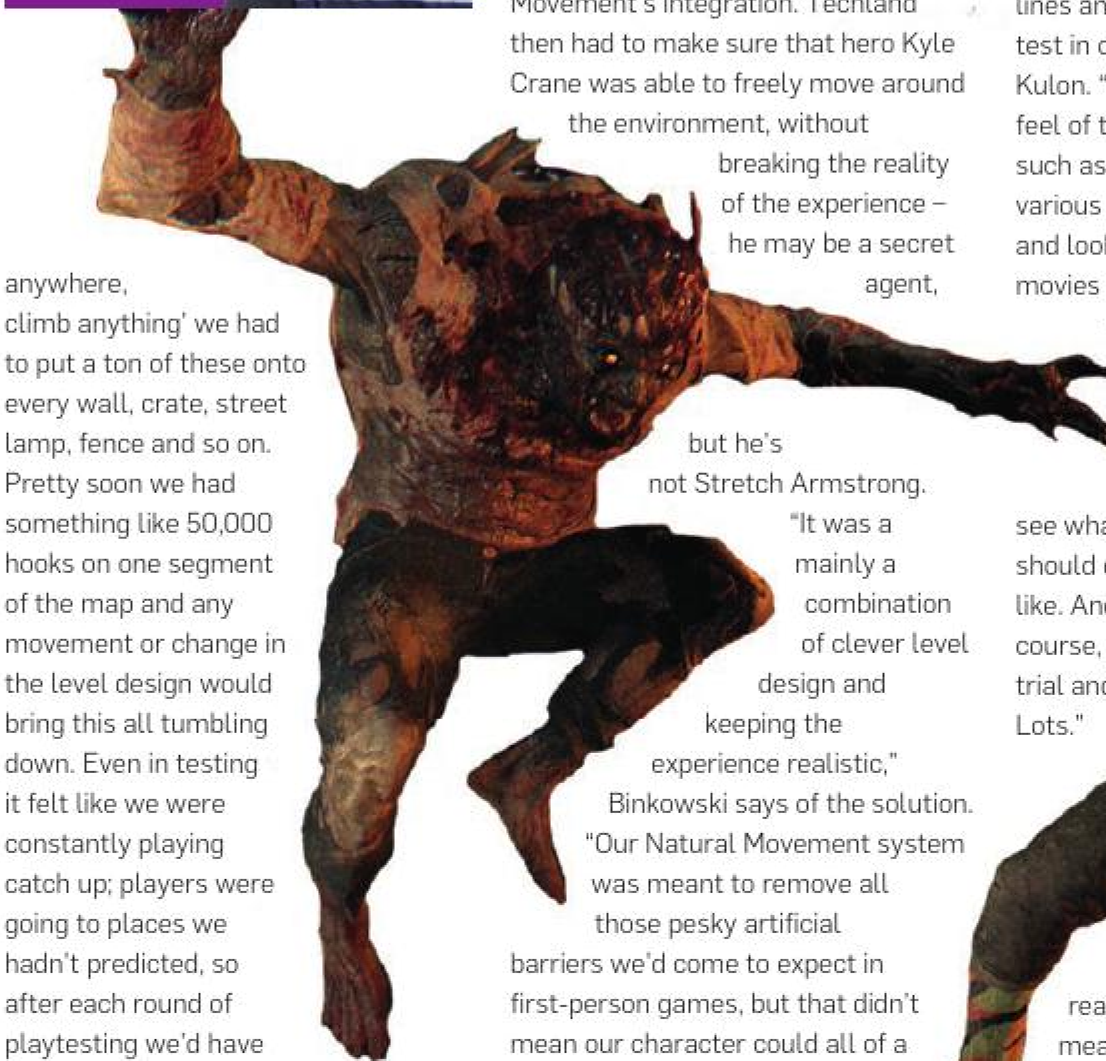
GETTING HOOKED

Before *Dying Light*, Techland previously created fellow zombie title *Dead Island* for PS3, Xbox 360 and PC in 2011. While the titles share some similarities – the multitudes of brain-munchers the most evident – *Dying Light*'s transition to the new generation of console hardware and major gameplay alterations, including the presence of parkour, meant that the studio was essentially building from the ground up.

"When we started out, we were basically manually putting in invisible interactive points where the player could grab and pull themselves up," lead programmer Bartosz Kulon says.

"We called these 'hooks' and they were dotted across all our in-game assets. But to give the illusion of 'go anywhere, climb anything' we had to put a ton of these onto every wall, crate, street lamp, fence and so on. Pretty soon we had something like 50,000 hooks on one segment of the map and any movement or change in the level design would bring this all tumbling down. Even in testing it felt like we were constantly playing catch up; players were going to places we hadn't predicted, so after each round of playtesting we'd have more and more hooks to place on top of the existing ones.

> **Natural movement could become an industry standard.**
> *Maciej Binkowski*



"This was actually a major hurdle that could have derailed the whole project. Then, based on an idea that was proposed, our senior game programmer sat down on his own and prototyped a system that analyses the environment in front of you in real-time and, based on certain geometric conditions, decides if you can climb the object. If the conditions are met, then the climb animation is triggered. This was probably the biggest turning point for our entire development."

Dubbed the 'Natural Movement' system, Techland's dynamic approach to judging whether players could traverse a variety of obstacles provided a manageable method to allow movement across the studio's biggest game world yet, which measures three to four times the size of *Dead Island*.

"We could now ditch all those pesky hooks and just focus on ensuring the assets met the set conditions when and where we wanted them to," Kulon continues. "Getting the first-person Natural Movement system to where it is now was still a lot of hard work, but the core idea from that early prototype was the seed that saved the game."

KEEPING THINGS GROUNDED

Allowing buildings to be scaled was just the first foothold in Natural Movement's integration. Techland then had to make sure that hero Kyle Crane was able to freely move around the environment, without breaking the reality of the experience – he may be a secret agent, but he's not Stretch Armstrong.

"It was a mainly a combination of clever level design and keeping the experience realistic," Binkowski says of the solution. "Our Natural Movement system was meant to remove all those pesky artificial barriers we'd come to expect in first-person games, but that didn't mean our character could all of a sudden know no limitations. We just had to make sure that all obstacles in the game made sense: where we placed them and why they were there in the first place."

This was particularly critical when it came to considering where Crane should and shouldn't be able to reach, even with his newfound powers of parkour. The same logic had to be applied to pursuing zombies, too, with variant forms of the undead exhibiting different levels of agility.

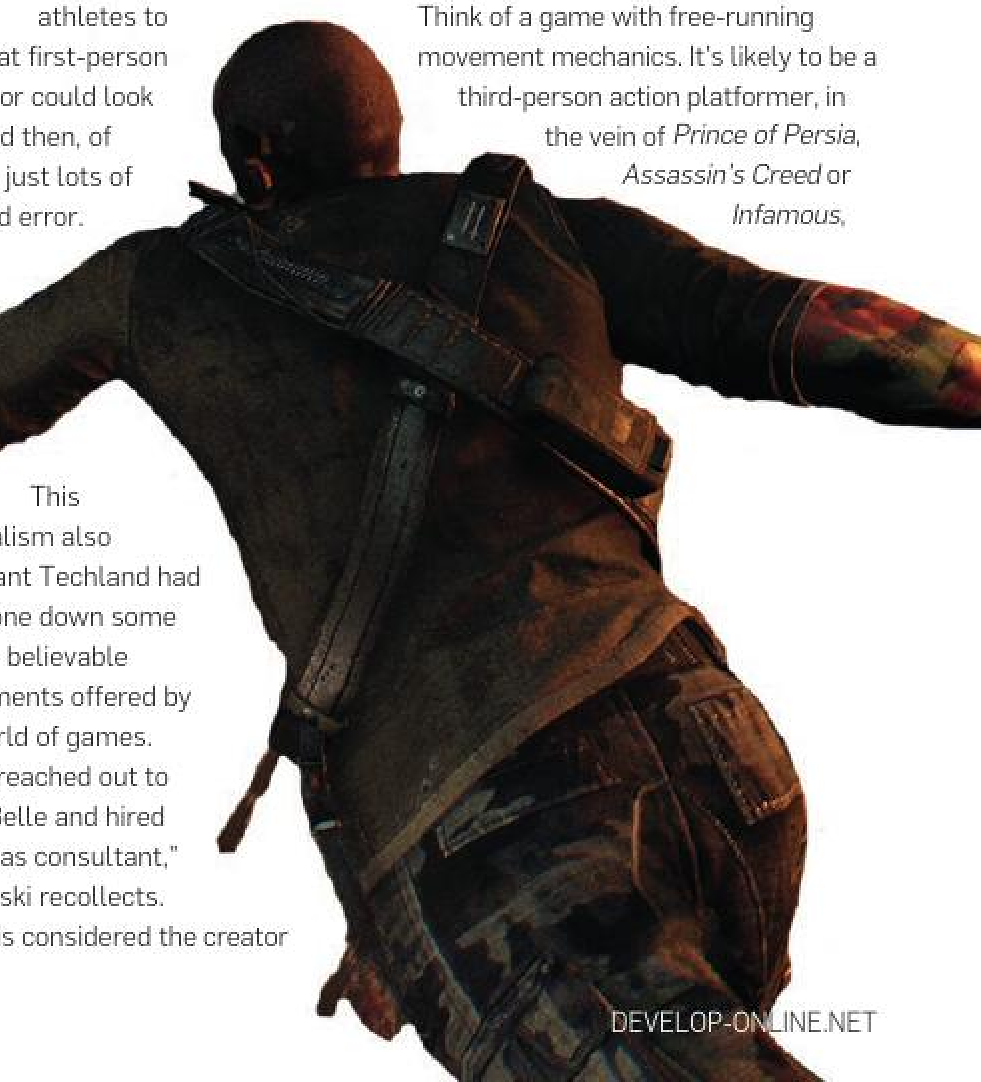
"It all took lots of testing because suddenly we could go to spots we never intended," Binkowski recalls. "We really had to change how we thought about level and environment design. Other major design changes were things like teaching our AI to properly climb and chase after you to ensure some challenge still existed when you were making your escape. Our loot and quests distribution also now had to incorporate this increased verticality and thus foster varied level design. We needed to place things of value and interest in hard-to-get places because we saw players would attempt to get there anyway when left to their own devices."

To ensure that locomotion was kept on a human scale, Techland collaborated with professional free-runners.

"Our Natural Movement system was coded entirely in-house so it was just lines and lines of code which we would test in our own game engine," explains Kulon. "Methods to get the look and feel of the system included things such as working and consulting with various traceurs – parkour athletes – and looking at a ton of references in movies and games to find move sets that added the right feeling and experience. We also did a lot of experiments with GoPros attached to parkour athletes to see what first-person should or could look like. And then, of course, just lots of trial and error. Lots."

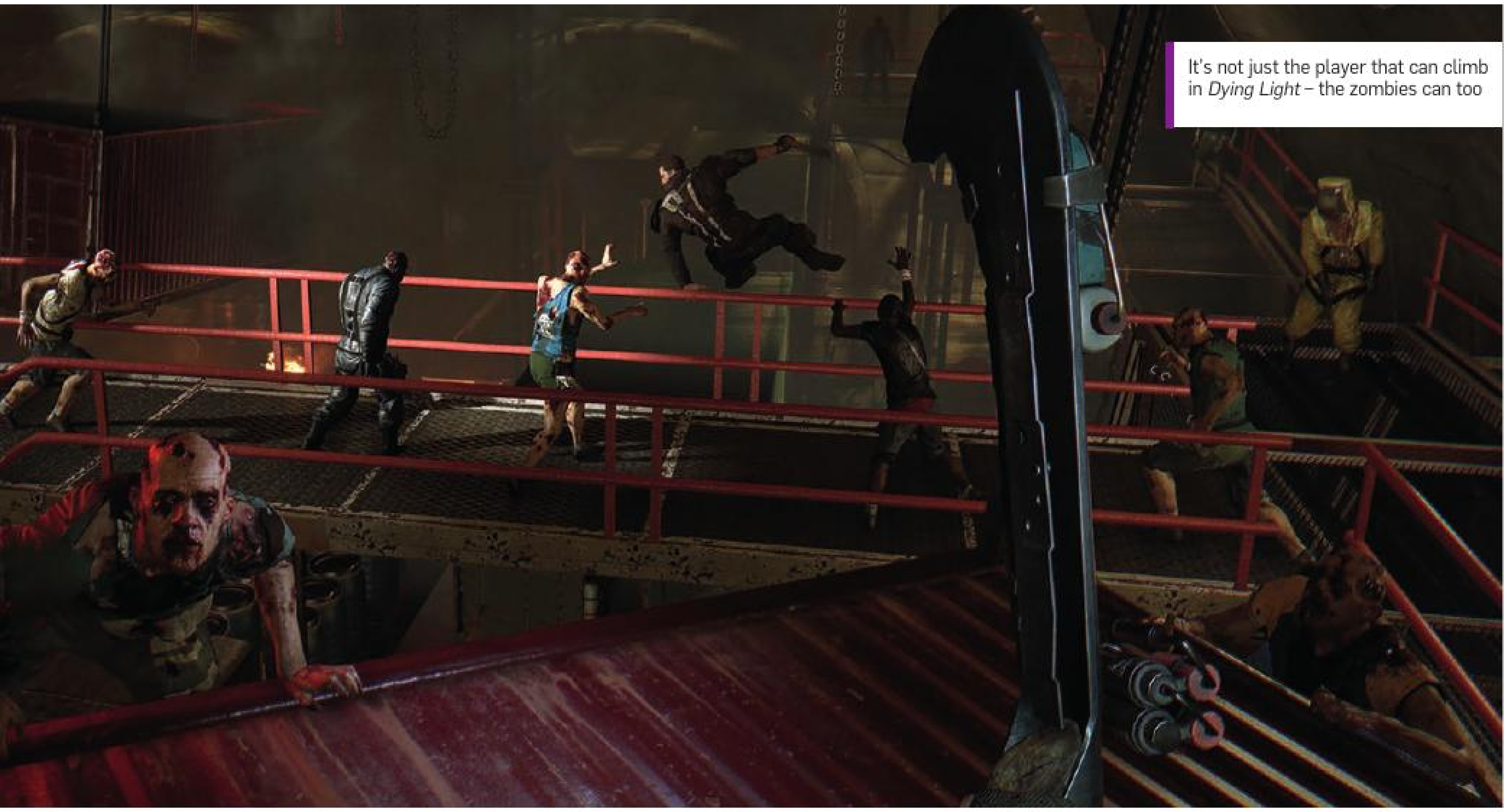
This realism also meant Techland had to tone down some less believable elements offered by the world of games.

"We reached out to David Belle and hired him on as consultant," Binkowski recollects. "David is considered the creator of parkour, and he helped us refine the look and feel of how our character was responding and using the environment. With David's help we were able to keep it about practical movement. In a game where you are in a zombie apocalypse, you're not trying to impress people with things like triple backflips."



A MATTER OF PERSPECTIVE

Think of a game with free-running movement mechanics. It's likely to be a third-person action platformer, in the vein of *Prince of Persia*, *Assassin's Creed* or *Infamous*,



It's not just the player that can climb in *Dying Light* – the zombies can too

rather than a first-person shooter. In adopting a first-person perspective, Techland found itself faced with a number of user experience challenges.

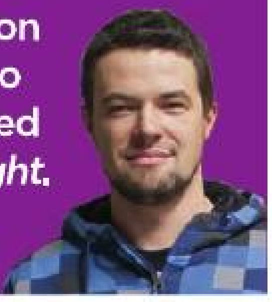
"Motion sickness was one of the main ones," reveals Kulon. "We did a lot of testing and tweaks to get that unfortunate response down to a minimum. It's been improved immensely compared with what we were seeing in our initial tests. It was a mixed bag of tricks all coming together: the positioning and size of the HUD retackle, motion blur, and the speed and type of parkour animations."

It wasn't just the visual expression of parkour that changed in first-person. Players' understanding of how to initiate the movement also changed.

"First-person meant the response time was something we had to tweak back and forth," Kulon continues. "During initial tests, we saw that players were using the parkour button a little too soon. When you play *Dying Light*, you're often looking ahead or up at the point you are aiming for. At that last crucial moment when you reach the very edge of the building you are on, you don't see that edge on your screen. If you hit jump too early you often end up not making it to the other side. So we adjusted the response of the button to be slightly delayed. It's not noticeable to the naked eye but it's there, and it's a sweet spot that we got to by adjusting it back and forth in microseconds."

Binkowski adds that, once again, maintaining a sense of realism was key.

> **Getting first-person parkour to work saved *Dying Light.***
> *Bartosz Kulon*



"We had a bit of tough time getting movement to look genuine in first-person," he details. "In third-person you see the whole character and can animate each part of the character's movement accordingly; people see the whole picture and therefore feel the movement or response on some level. In *Dying Light*, we just have the main character's two arms, and sometimes his feet, as the main visual on screen. So we had to get these limb animations, movements, portions and so on perfected, because before that often you'd just feel like your character was a floating camera.

"All of this and many other issues meant we often thought about going to third-person. But this was probably just out of frustration. Third-person has its own set of hurdles, so we just buckled down and pushed through."

PARKOUR LIFE

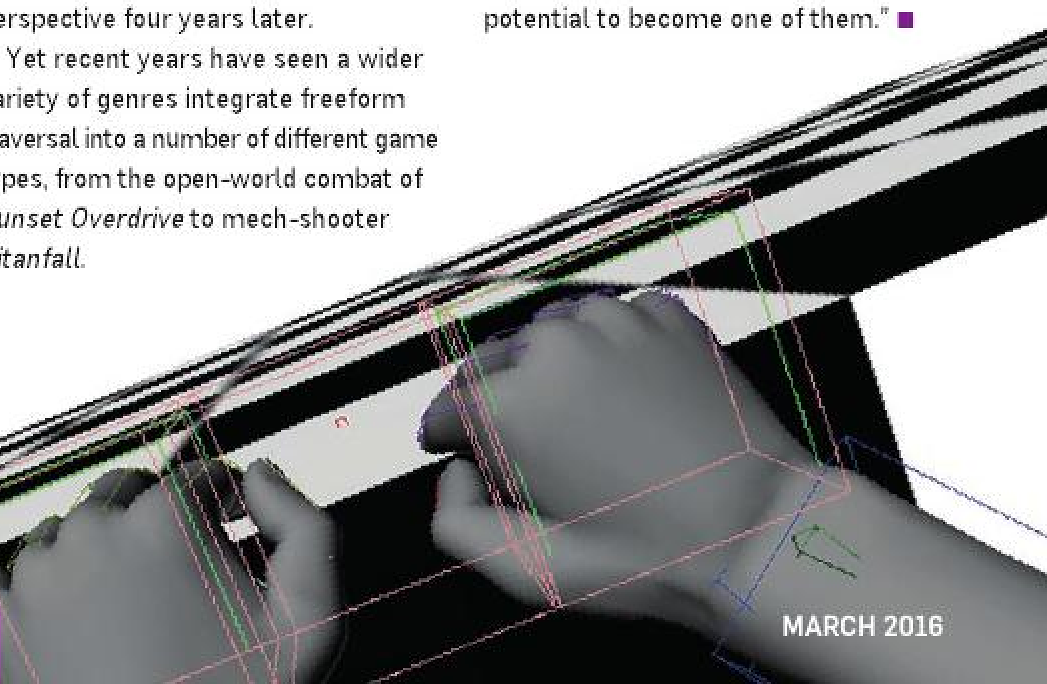
Free-running in games is nothing new – *Prince of Persia: The Sands of Time* arguably popularised the mechanic all the way back in 2003, with *Mirror's Edge* taking it to a first-person perspective four years later.

Yet recent years have seen a wider variety of genres integrate freeform traversal into a number of different game types, from the open-world combat of *Sunset Overdrive* to mech-shooter *Titanfall*.

2016 looks to be another strong year for parkour's popularity, with the return of *Mirror's Edge* and *Dying Light* expansion *The Following* – although the next *Assassin's Creed* has vaulted into 2017.

"It's a couple of factors coming together," Binkowski suggests as to the concept's continuing prevalence. "In our case, it was all about creating that next step in movement. It was also a matter of authenticity.

"Free-running is trendy because it looks and feels spectacular, so it's perfect for games. In a couple of years we will look back at today's trends and see it as a natural evolution of gameplay. With better hardware comes new possibilities and gameplay mechanics, some of them turning into industry standards. And more realistic or natural movement has the potential to become one of them." ■



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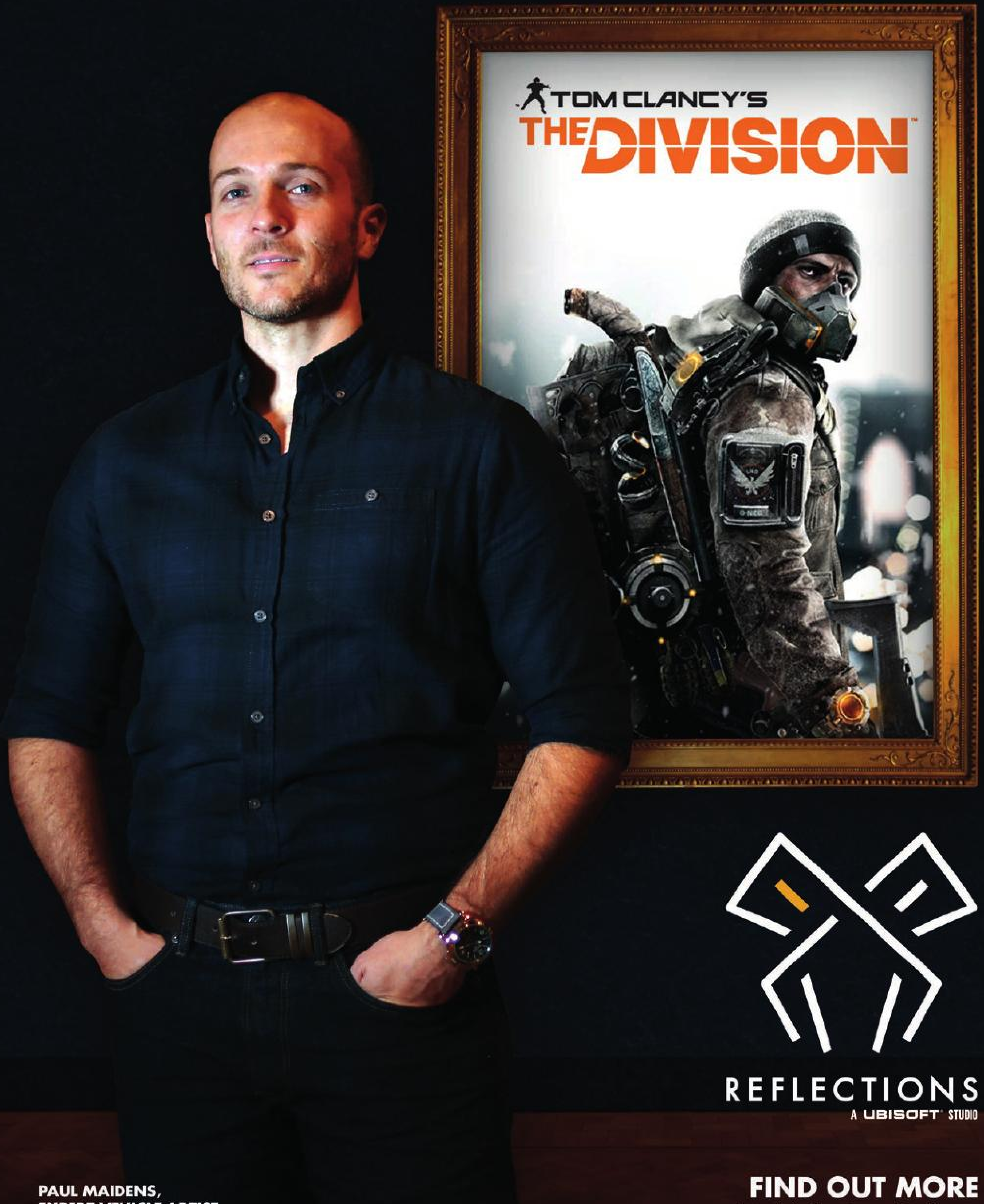
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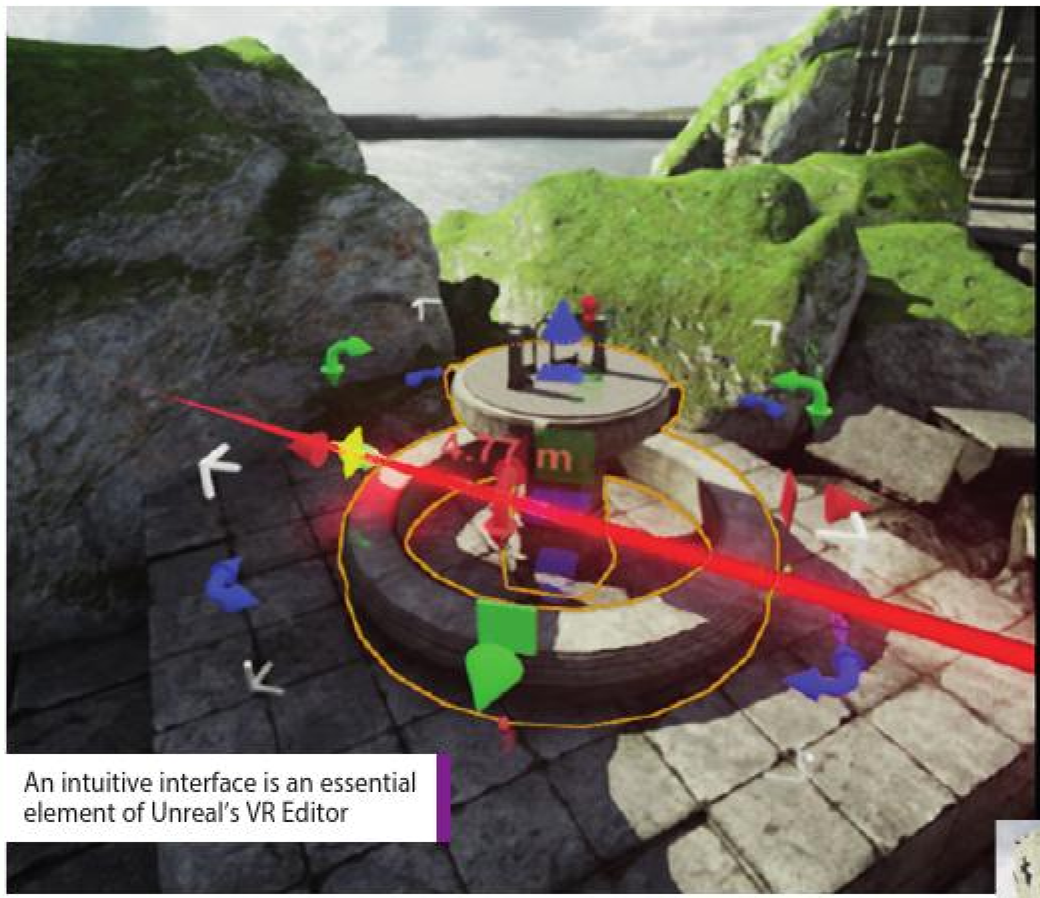
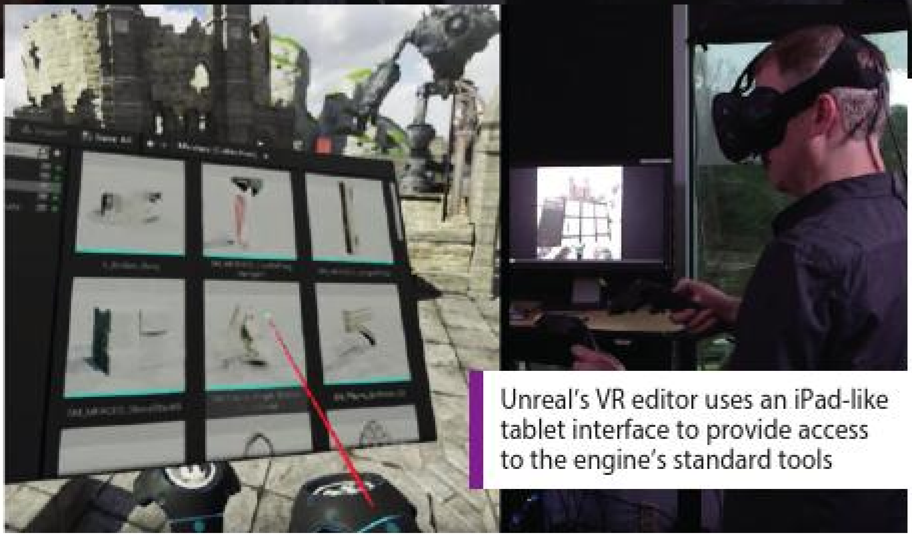
VIRTUAL UNREALITY

As a landmark year in virtual reality unfolds, Unreal Engine has opened up the ease of editing content in VR to foster the medium's success and present a clear path for creators



An intuitive interface is an essential element of Unreal's VR Editor



Unreal's VR editor uses an iPad-like tablet interface to provide access to the engine's standard tools

It's no secret that 2016 is on track to be a transformative year for VR. With devices like Samsung's Gear VR, Oculus Rift, HTC Vive, PlayStation VR and Google Cardboard revolutionising how we experience the virtual world, what's left of 2016 will serve to either solidify or disprove the notion that VR is truly the next big thing.

Many developers have been working in VR for years but, as the hardware finally hits retail shelves, there's no doubt that developer interest will skyrocket as the prospect of pioneering – and becoming prosperous – within the space becomes a reality.

Events such as the VR Developers Conference serve to foster an environment of education and feedback as creators seek to engage with the next levels of interactive entertainment, art and design. As a result, the need to effectively and efficiently create content for VR is quickly becoming a priority.

At the core of this ecosystem lies Unreal Engine 4. The engine, which first introduced real-time 3D editing on PC in 1998, is once again positioning itself as the go-to tool for content-creating pioneers with the new preview of its VR editor for UE4.

As Epic CEO and founder Tim Sweeney puts it: "As game developers, we at Epic pride ourselves in creating high-productivity tools optimised for shipping products, and VR editing provides a great path forward."

That's exactly what Epic's VR editor is: a tool that grants the full power of UE4 to developers while offering instant access and real-time immersion into projects as they are brought to life.

> **The Slate user interface framework provides a great foundation we'll build on as we roll out the entire Unreal Editor UI in VR.**
> *Tim Sweeney, Epic Games*

"As a pro tool, the Unreal Editor features a rich 2D user interface, and it's being rolled out naturally in VR," says Sweeney. "One button-press places an iPad-like tablet in your hand, and you use the other hand to interact with the tablet.

"It's an intuitive way to place a 2D user interface in a VR world, and the underlying Slate user interface framework provides a great foundation we'll build on as we work to roll out the entire Unreal Editor UI in VR."

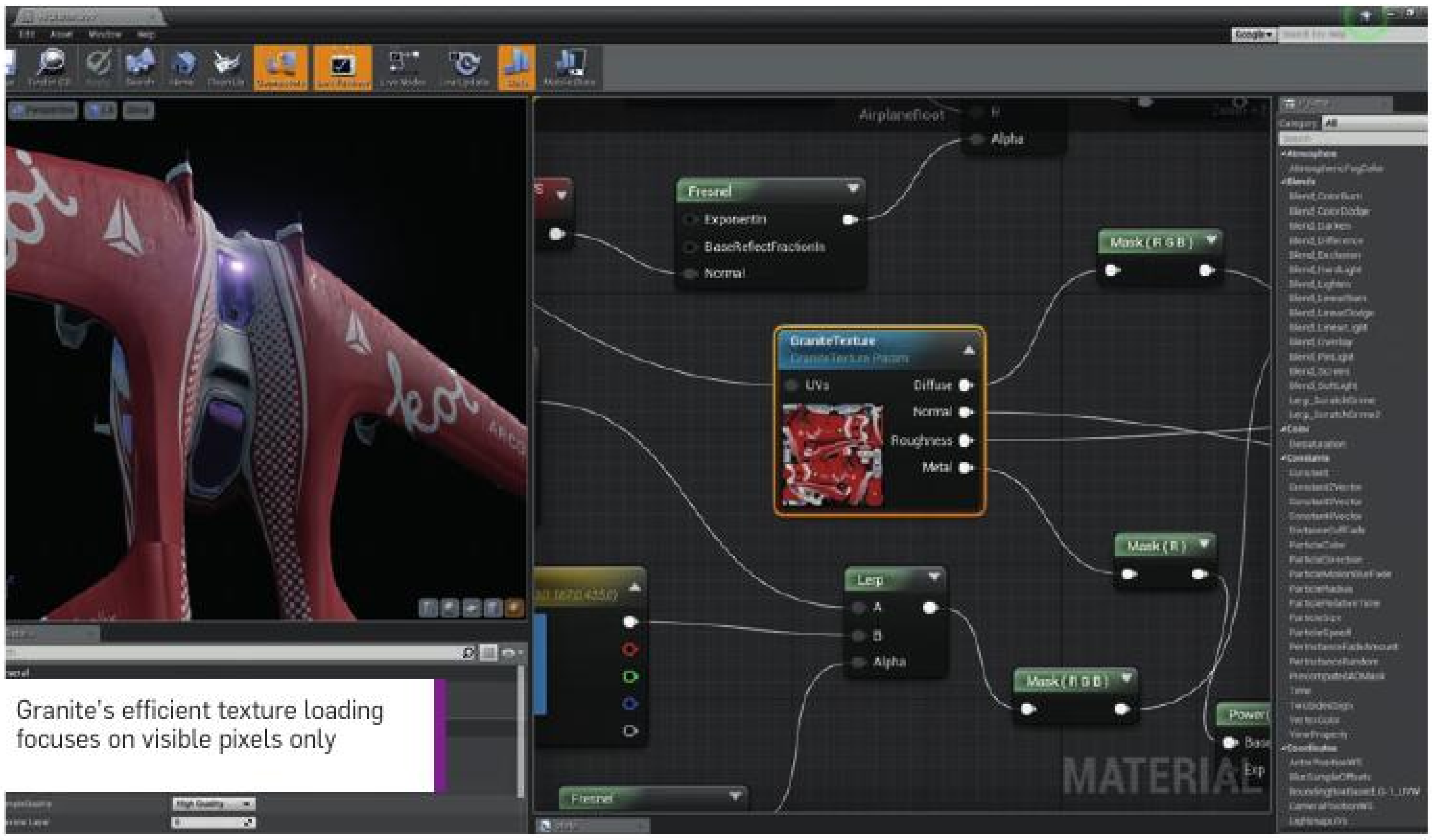
While Epic has provided a path for developing VR in VR, Sweeney recognises that this initial step is just the beginning, and that it will be up to the brightest minds and most talented artists to make the VR revolution real.

"Today is the very start of a long-term effort that will revolutionise the way people create 3D content," he concludes. "Some parts of it are awesome right now, others parts have rough edges, and we're rapidly advancing on all fronts." ■

KEY RELEASE

GRANITE SDK 3.0

With PBR and VR putting new demands on memory resource, the new Granite SDK 3.0 hopes to future-proof texture streaming. We take a look at the tech's latest big update



Granite's efficient texture loading focuses on visible pixels only

Product: Granite SDK 3.0
Developer: Graphine Software
Website: www.graphinesoftware.com/products/granite-sdk
Tel: +32 9 247 01 05
Price: On application
Key features:

- Bring down texture memory usage to 1GB or less
- Reworked tools use 50 per cent less CPU and GPU
- Optimised for solid VR performance

For those striving to deliver high-end results without placing too great a demand on memory supplies, the appetite of textures can serve as a thorn in the side of development.

Recognising that issue, the Granite SDK was conceived. The technology has just seen its latest full update, bringing Granite SDK 3.0 to the fore.

As before, the middleware delivers a fine-grained texture streaming middleware, which focuses on giving developers an opportunity to increase their textures from 2K to 4K, and, in some cases, 8K.

Granite also lets games makers garnish their scenes with unique PBR materials, use 8K material masks and take advantage of notable dense lightmaps. In doing so, it is primed to optimise video and main memory usage, loading times and disk access when it comes to textures.

“The great thing about Granite is that you'll rarely need more than 1GB of VRAM for a 1080p screen resolution, even if you use many high-resolution textures in your scenes,” promises Graphine CEO Aljosha Demeulemeester. “Texture loading will be smooth in your game, without long disk stalls, noticeable popping or inefficient use of bandwidth. By loading only the pixels that are actually visible, Granite streams much less data than other systems.”

> With Granite SDK 3.0, you'll rarely need more than 1GB of VRAM for a 1080p screen resolution.
> *Aljosha Demeulemeester, Graphine*

MATERIAL FREEDOM

Inspired by the vision of providing what Demeulemeester calls ‘total material freedom’, Granite has been reworked for its 3.0 iteration to bolster efficiency and engender intuitive workflows.

“We had to optimise Granite further because this flexibility had a performance cost,” asserts Demeulemeester.

The team are confident their efforts ensure that Granite 3.0 uses around 50 per cent less CPU and 50 per cent less GPU in most working scenarios, relative to version 2.X's offering. That news will come as significant to many developers, and provides those taking on an emerging frontier in game design with some well needed spare power.

“This is a major gain, especially for our users that are building VR applications,” offers Demeulemeester. “We've also introduced a new file format that – together with the redesign of the runtime – reduces the file size by 25 per cent by eliminating redundant data. And we've polished the user interface of our tools for a smoother workflow.”

RENDERING THE FUTURE

The Granite SDK 3.0 promises a good degree of future-proofing as physically-based rendering continues its rise in prominence. With that trend, a new proliferation of high numbers of 4K PBR materials is emerging, setting developers a distinct challenge.

“We wanted to make sure developers were actually able to use all this content in a game,” confirms Demeulemeester. “Another important element is the rise of virtual reality. VR apps need higher resolution textures because of the high screen resolutions of the HMDs, among other things. The high performance requirements demand a very efficient system that has a deterministic resource use. We've made sure that Granite's new design and optimisations guarantee a solid performance.”

Offering developers all these abilities could come with so much to learn it might render embracing Granite SDK 3.0 too disruptive to studio workflows. It's a challenge that Graphine recognises, but the team is confident that they've managed to craft a system that demands less system resources while delivering a user-friendly system.

“Developers will be able to add textures to their game without worrying about memory usage or loading times,” concludes Demeulemeester. “They'll be able to bring down their texture memory usage to 1GB or less for their ultra-high quality setting. They will be able to directly import any image file and use that as a texture [and see] resolutions up to 256K, grids of images, UDIM files and so on. There's a number of performance controls to ensure a stable frame rate.”

With an indie license of Granite for Unreal launched and a Unity equivalent poised for release at the time of writing, it appears Graphine's vision of bringing high-end textures to numerous game forms may be entirely possible. ■

HEARD ABOUT QUANTUM BREAK

Title: Quantum Break
Developer: Remedy Entertainment
Publisher: Microsoft Studios
Platforms: Xbox One, PC
Release: April 5th
www.quantumbreak.com

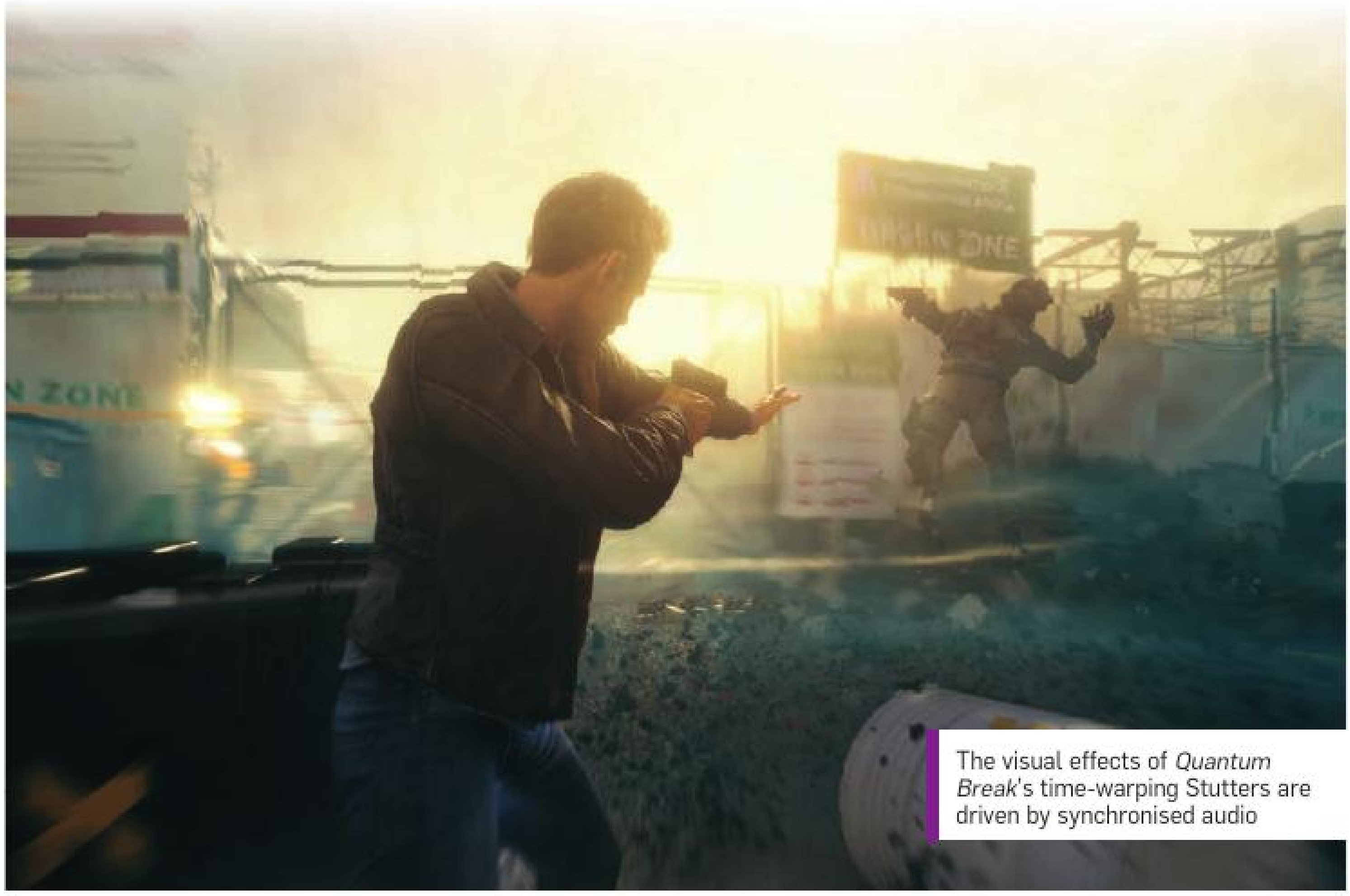
John Broomhall talks with Remedy's Richard Lapington about scoring the time-bending title

Time is of the essence in *Quantum Break*, which mixes a video game with a live action TV-show featuring a parallel story in which hero Jack has to survive 'Stutters' – time breaking down and making different game world objects jump backwards and forwards. He can also make everything slow down around him and use his powers to stop enemies and certain objects in their tracks.

All rich pickings for sound design, which played a key narrative role. Remedy's audio lead Richard Lapington says he wanted players to recognise instantly what 'state' the game-world is in – even with their eyes shut.

"We needed the 'Stutter' to aurally totally contrast with the normal game-world, so we decided to run two sets of audio side-by-side – a 'normal' set and a 'stutter' set, and switch between them," he explains. "Aesthetically, this was quite tough – trying to concoct sounds that resembled what you see yet were 'fractured in time'.

"Music also plays a huge part in communicating time breaking – music and rhythm are based on repeated patterns and by breaking those patterns in sync with the gameplay we can emphasise time breaking and create unease. Music stretches and filters, as does dialogue and most other sounds, when time shifts."



The visual effects of *Quantum Break*'s time-warping Stutters are driven by synchronised audio

KEEPING TIME

Lapington went through many variations and concepts along the way – the audio team would make assets and discuss which ones worked and which didn't. Over time, they created an audio reference guide of descriptors for Stutters: 'violent', 'unpredictable' and so on. Even more important were words that described what Stutters were not, with the team avoiding 'sci-fi' or 'digital'. This was vital given that several of the audio team were working in different locations, as far flung as Microsoft's Redmond HQ and later Soundcuts in London.

Lapington's creative direction cross-pollinated to the live action show's audio team too, helping ensure consistency in environment and time-related audio treatments.

Delivering his audio ambitions in-game entailed some custom augmentations to Wwise to assist with the time manipulation aspects and audio/visual sync.

> **By breaking music patterns in sync with gameplay we can emphasise time breaking and create unease.**
> *Richard Lapington, Remedy Entertaiment*

"We created Q-grain, a real-time granular synth plug-in," says Lapington. "We wanted to closely link animation timing with sound. Right from the outset we knew we had this crazy challenge of matching sound to objects moving backwards and forwards in all sorts of different timescales, all at once. Granular synthesis was the obvious choice for a plug-in, our criteria being that it should sound 'natural' and that we wanted to control every parameter in real-time using RTPCs.

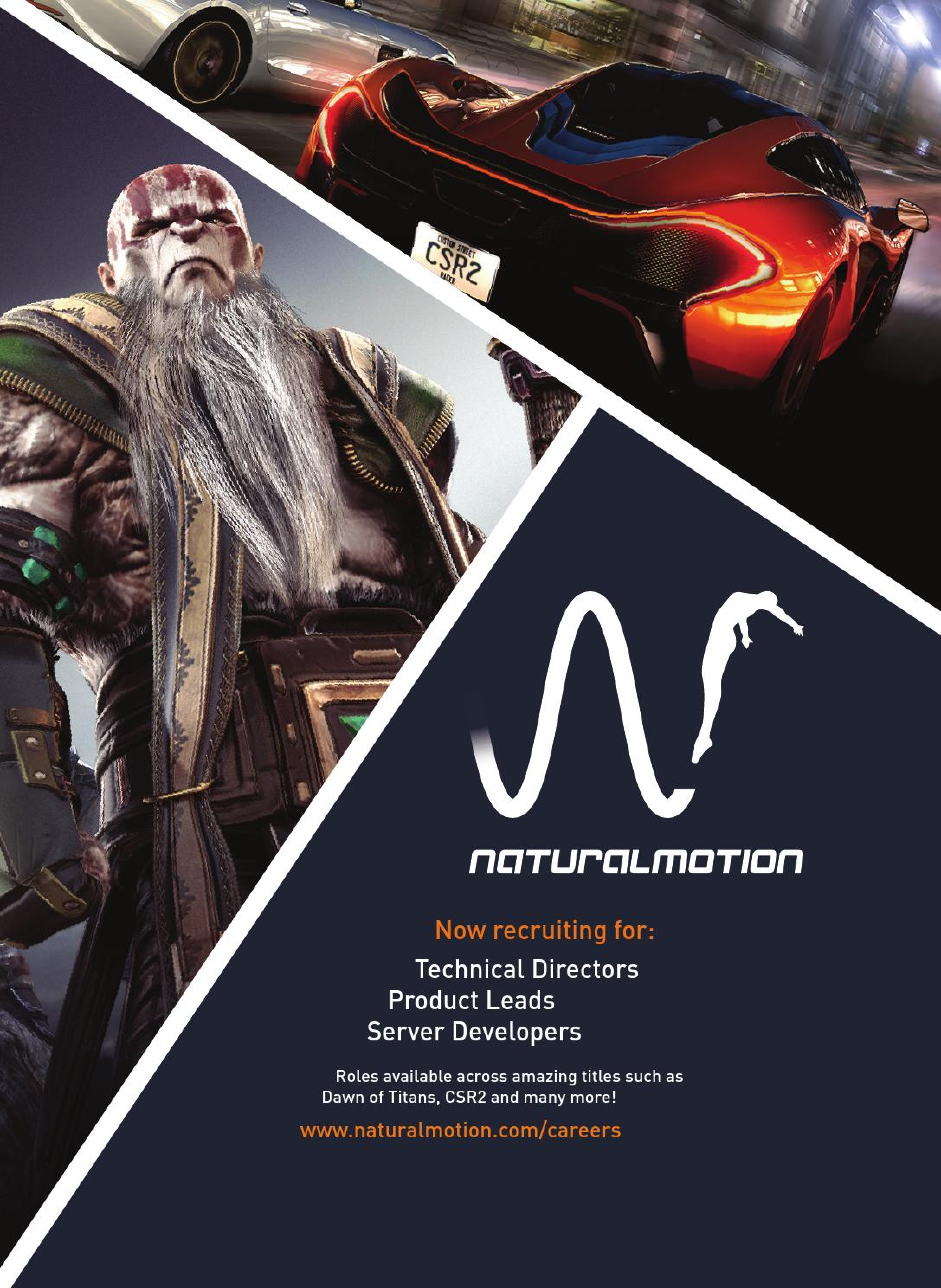
"We also needed to run multiple versions simultaneously in any scene, using compressed sound files not PCM to conserve memory. Designing sounds for use in the synth to get the outcome you wanted proved something of an art form – especially considering you're matching some mad animations, such as a ship crashing into a bridge. Certain 'shapes' of sound just don't work, and you have to be pretty clever with frequency movement-blending to make it sound convincing."

The team also created a second plug-in called the Q-analyzer. This analyses audio in real-time and passes a resulting signal out of the audio system for use in the game.

"Visual manipulation of an audio signal is something our art director Janne Pulkkinen has been working with for a while," Lapington explains. "From an audio perspective it's really simple – we add a plug-in to a sound in Wwise, and with a line of script in our game engine we can drive visual effects, such as an animation timeline from a sound's RMS value.

"Driving visual effects from audio forms the cornerstone of the game's Stutters. All the wavy visual distortions you see in the environment are driven by sound effects – and audio and visuals are always in sync, which makes the game feel really holistic and connected." ■

John Broomhall is a game audio specialist creating and directing music, sound and dialogue
www.johnbroomhall.co.uk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HOMEWORLD BOUND

Blackbird Interactive went from developing a spiritual successor to Homeworld to helming the first new entry in the sci-fi strategy series in more than decade. Lead programmer **Yossarian King** reveals the transformative power held by the IP

“It pretty much saved the studio,” Blackbird Interactive CTO Yossarian King says as he recalls the moment the developer was granted permission to use the *Homeworld* license.

Following years of failing to secure the rights to the sci-fi strategy series, which had lain dormant since 2003, King and his team were finally approved by Gearbox, after THQ's bankruptcy and assets auction in 2013 left the *Borderlands* creator in control.

As well as rehiring laid-off staff and allowing *Hardware: Shipbreakers* to be rechristened as *Homeworld: Shipbreakers* – later to become *Homeworld: Deserts of Kharak* – the acquisition also saw Blackbird scale up its ambition for the title.

“Our project was originally a Facebook game,” recollects King, who served as lead programmer on the title. “Our plan was to create a lush visual experience unlike anything available on Facebook at the time. We chose Unity for its ability to bring fantastic 3D graphics to the web.

“Mid-way through development, we got the *Homeworld* license and shifted to a more hardcore RTS experience for the PC. By this time, we had a lot of experience with Unity and opted to keep using it; Unity was a great foundation to build on, and allowed us to focus on game systems and features rather than over-investing in core tech.”

Although the technological heart of the title remained the same, bringing *Homeworld* to PC presented Blackbird with the opportunity to take advantage of more of the engine's abilities.

“We started the project on Unity 2.6 and, since we were on a shoestring budget, we used the free version, which at that time didn't support shadows or video playback,” King says. “When we got the *Homeworld* license and shifted to a more traditional competitive RTS game with high unit counts, the biggest change was the deterministic simulation architecture.

> **Separating our simulation from Unity physics was tricky but really contributed to the fantasy.**
> *Yossarian King, Blackbird Interactive*

“As the project progressed, the content we were piling into the game got massive. We were using Unity 4.6, which was a 32-bit application, and the team was crashing the editor regularly with ‘out of memory’ errors. The 64-bit editor in Unity 5 was a godsend, and the memory problems became a thing of the past. Unity 5 also boosted performance and let us raise the bar on graphics.”

ON ANOTHER LEVEL

Deserts of Kharak sees players wage warfare on the titular sandy planet. Environmental features such as the height of dunes play into the tactical advantage of units, with Unity once again providing the foundation.

“We used Unity terrain for initial whiteboxing and layout of maps, but final terrain was all handsculpted in art packages,” King reveals. “We built custom tools for applying multi-layered decals to terrain within the Unity editor, and for splitting up the world into a grid of tiles. The pipeline generates a heat map of rendering performance so the artists know where to optimise the levels.

“For vehicle physics, the game simulation controls the 2D position and heading of each unit; the physics can then bounce the unit up and down on its suspension and pitch and roll the vehicle. Separating our simulation from Unity physics was tricky but really contributed to the fantasy of massive trucks in the desert.

“We also used a number of packages from the Unity Asset Store to accelerate development and extend the toolchain for artists and designers; mission scripting was done with uScript, front-end transition logic with Playmaker, audio configuration and tuning with Fabric, and front-end screens and in-game menus with NGUI.”

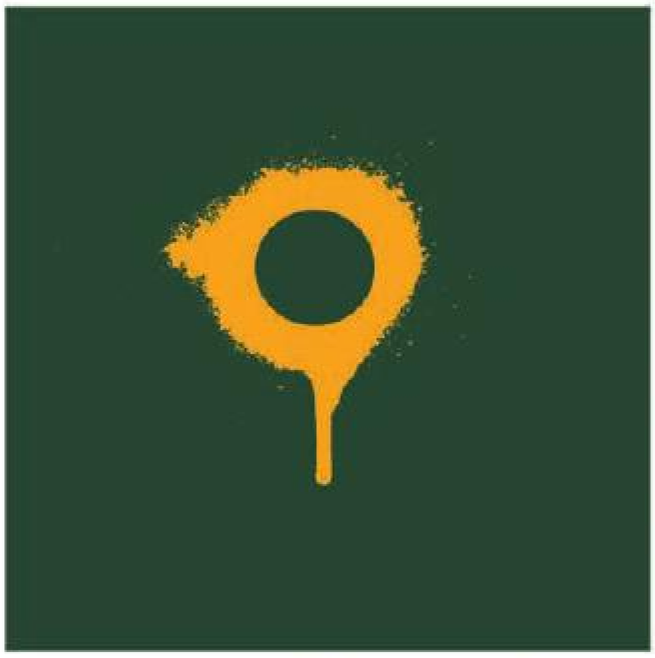
The path taken by Blackbird to make its modern-day vision of *Homeworld* a reality was as bumpy as the dunes of Kharak, but King is pleased with the final outcome.

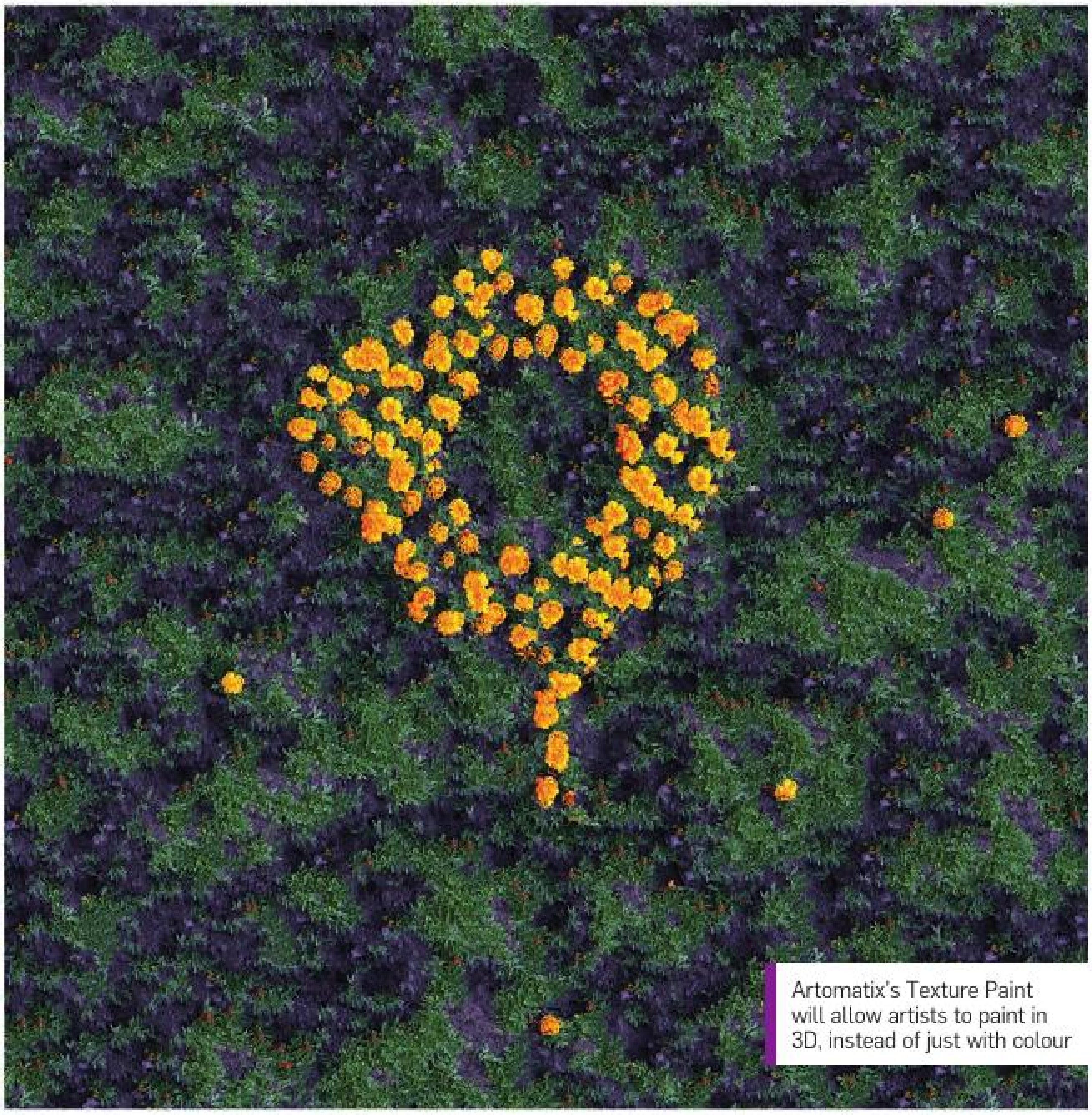
'We've been really stoked by the community's response to *Deserts of Kharak*,” he enthuses. “They seem to have appreciated our efforts to remain true to the original game while bringing some new and unique twists.” ■

HOMEWORLD: DESERTS OF KHARAK
Publisher: Gearbox Software
Developer: Blackbird Interactive
Platform: PC
www.desertsofkharak.com

SMART **ART**

Artomatix aims to free artists from the more mundane aspects of games development – by letting AI handle it





Artomatix's Texture Paint will allow artists to paint in 3D, instead of just with colour

For ten years, Dr Eric Risser has been determined to solve a problem. At GDC 2016, he will share his solution with developers around the world.

Having started experimenting with games development as a teenager, Risser soon found he was the type of artist who would spend eight hours making a house – then be disappointed when he realised he had to make a whole village.

Given the growing size of open worlds and the rising expectations for detail, a 'create, copy, paste' attitude to building art assets is no longer acceptable to most consumers. But how can artists keep their creativity at a maximum throughout large-scale projects?

Risser's new service firm Artomatix offers an alternative. The company uses AI software to analyse assets uploaded by artists, then generates similar – but, crucially, unique – assets of its own. The uploads can range from textures to 3D models, and the output will be based entirely on the original work.

"Imagine being tasked with creating 100 unique zombies," co-founder Neal O'Gorman offers *Develop* by way of example. "That's fun when you create the first three or four. It's a bit boring by the time you've created your hundredth. The same goes for bricks in the wall and that kind of thing."

He then shows us a screen filled with zombie heads, each one subtly different and all extracted from the original three heads created by the artist. It's an impressive tool – so why restrict it to an online service, rather than releasing it as a standalone product?

"Because we're running some serious computation here," O'Gorman says. "We're applying artificial intelligence to create new art. All that computation is happening on the cloud, on software servers, using high-end Nvidia GPU cards. So every time someone is generating something, it's costing us. That's the legitimate reason for it being a service.

"Some people ask if it can be a downloadable tool. The answer is not really at this stage because you need specific high-end hardware. Otherwise you could be waiting a while for your art to be generated – for some of the technology that we're bringing out, that just doesn't make any sense."

While the array of zombie heads serves as a great introduction to Artomatix, it is by no means the limit of what the technology can do. O'Gorman confidently claims that any type of 3D model could be uploaded and the AI would learn enough from the artist's creation to generate more.

"We don't know that what you're uploading is a head – we don't identify what it is," he says. "For some, that's a drawback, but that's actually the beauty of it, because it means we can take any input, learn from it, identify a rulebase and try to break a little bit outside of it."

Sticking with heads, however, O'Gorman shows us another example: dozens of humanoid heads derived from just two – one human, one orc.

"One face gives us a lot of information," he explains. "A second face gives us a little bit more unique information, but there's a lot of redundant stuff: there's still two eyes, a nose, a mouth and so on. A third face adds a little bit more, but as you keep adding new faces, the unique information decreases.

Artomatix learns on its own to generate completely new and unique assets – such as heads

"However, our tech can even learn to the point where it generates heads without earlobes, for example. So it's not just taking the nose of one and the ear of another – it's actually able to grow new things."

PAINTING WITH NUMBERS

Growing new heads is just one milestone on Artomatix's roadmap. The firm says it has 11 'core pieces of technology' it wants to introduce over time that will solve various different problems for artists. With each addition, the possibilities and the range of artists the firm will be able to help will increase.

"One tool that's in the works, for example, is something we call 'Texture Paint'," says O'Gorman. "As that matures, we'll reach the point where someone can be literally painting in the texture in 3D, and not just with colour. For that, it needs to be responsive; they need to be able to see their work growing as they're moving, and that's going to be really impressive."

To demonstrate, he shows us an image of the Artomatix logo created out of flowers (*opposite*). One of the firm's artists developed a single texture tile, specified the shape of the logo and the software handled the rest.

The company is starting with just a handful of features, the first of which is making textures 'tileable'.

"It's our least sexy feature," O'Gorman admits, "but it's a perfect example of saving the artist time. Artists are already able to blend textures together, but we spoke with one triple-A studio who said that for their most recent game they did it 3,000 times – it could take from half an hour to two days depending on how detailed the texture is. That's boring work – you're not getting the most out of your artists. We can take that texture and make it tileable within a matter of seconds."

> **We're allowing an artist to get their concept out there without having to spend all their time on the mundane. The creative process is what's really important.**
>
> *Neal O'Gorman, Artomatix*

This creates the problem of seams, visible lines that players will be able distinguish as the border between tiles. Artomatix is able to grow the texture over a larger range in a way that covers these seams.

"There's only so large you can go, particularly on phones, so we have also created what we call 'Infinity Tiles'," O'Gorman says. "These basically allow you to take a texture and create 16 new variants that can sit together in a particular way so that, when you follow the ruleset, you can cover a mountain completely without any repeating pattern. This concept has existed before, but we can automatically create it. It doesn't just look better, but runs better too."

ART FOR ART'S SAKE

Unlike many of the new tools on the market, Artomatix isn't designed to make life easier for indies and smaller studios. Instead, it is initially targeted at larger and triple-A studios.

"The companies that are going to benefit most from this are those that are creating big open worlds," says O'Gorman. "Someone who is really under pressure to create an awful lot of art assets, who really needs diversity. They need the quality and we will hit that quality, get that performance right for them, and then it will be in a position to be applicable to the rest of the industry."

In fact, Artomatix has been working on its software with the help of a large, triple-A studio over the past 12 months. While O'Gorman is unable to divulge which studio, he teases: "Everybody knows their franchise."

"They've been amazed and impressed with our technology, and are actually looking at using this not only for production but also post-production," he says. "It's still applicable after a game is released because you can continue uploading new art assets to give your title a new look. That's something that intrigues them."

Ultimately, the plan is to make this available to everyone – including indies – although this is likely to have restrictions so smaller studios won't be able to flood the service with thousands of art assets.

Artomatix is currently in beta and therefore free, with final pricing to be decided, but it is expected to have a three-tier price range: one for indies, one for medium-sized studios and another for triple-As. As each of those 11 pieces of technology are added, O'Gorman is confident the service will provide more value.

"We're allowing an artist to get their concept out there without having to spend all their time on the mundane," he says. "The creative process is what's really important, rather than the tedious elements of actually building it.

"We also open doors to a lot of things people have never been able to do before. A lot of people who see this think it would be great on the conceptual side. Everybody knows that the better a concept looks, the more it sells the concept.

"The whole concept is making sure no two things look the same. It's all art creation based on the examples. Some people instantly go: 'Ah, you're procedural.' We're not quite, but it's the closest thing that people can understand because we're generating art using software. Our starting point is the artist's input. We want artists to be focused on being creative, and let us deal with the tedious tasks."

You can find out more via **www.artomatix.com**. ■

The develop Post-Mortem
THE ROOM THREE

Fireproof Studios' The Room trilogy has been a critical hat-trick, stacking up accolades for its brainteasing puzzles, detailed visuals and intuitive touch controls. Barry Meade takes **Matthew Jarvis** through the creation of the series' latest effort

A room. A table. A box. The setup of each of Fireproof Studios' instalments in *The Room* franchise is deceptively simple. Yet, as players begin to explore the mechanical workings of each mysterious object, new puzzles and locations are revealed, taking players on a winding journey in search of the mysterious fifth element, 'Null'.

It's a polished premise that has led to major success for Fireproof, the studio founded by former Criterion Games developers. Among a slew of awards, *The Room* and its two sequels have been downloaded more than five million times across mobile and PC.

Although each *Room* game begins with a similar situation, the three titles introduce original mechanics and ways to interact with their iconic clockwork puzzle boxes, from revealing hidden text with a mystical eyeglass to diving inside the tightly-clasped machinery.

"Really the differences are in scale, as each game is bigger and more complex than the last, and scope, as we try to make successive titles more sophisticated in their mechanics, gameplay and visuals," explains Fireproof's commercial director Barry Meade. "That's just a way of saying we want each game to beat the last in ambition and how much players enjoy it.

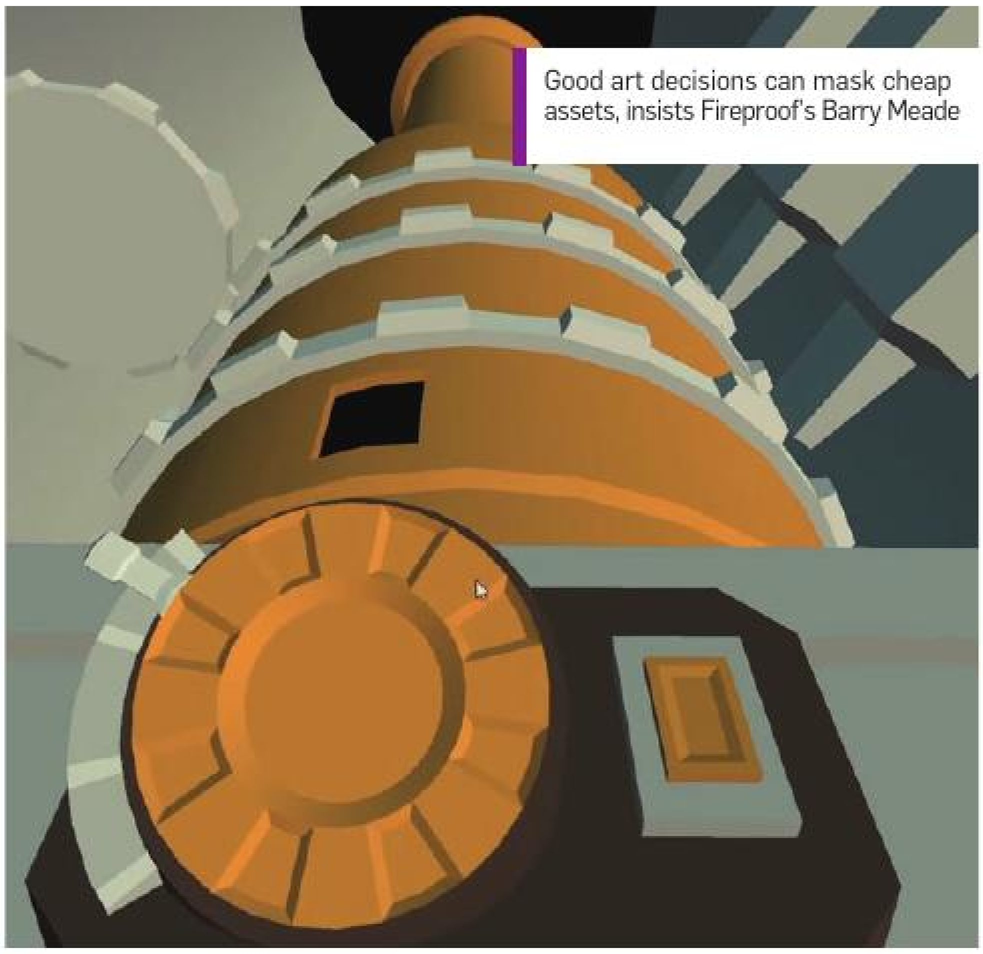
"In terms of what we've learned from the first two games... well, you can't argue with knowing what works. The fact that the previous games were a success taught us that our assumptions about what makes an interesting game were not wide of the mark. That gives us great confidence to continue doing what we enjoy doing."

FOUR WALLS AND A CEILING

Fireproof used Unity to build all three of *The Room* titles, a decision that Meade calls "a no-brainer" given the studio's humble beginnings.

"*The Room* was only made possible by a confluence of two or three factors," he explains. "One of which was that Unity arrived on the dev scene, another being that mobile became a viable gaming platform. Fireproof only had one programmer when we made *The Room* and the only reason we could afford Rob Dodd, our lead coder, was because we didn't have huge bills to pay to an engine maker or platform holder. Without these catalysts *The Room* would never have happened."

The Room's complex puzzles are refined through plenty of testing



Good art decisions can mask cheap assets, insists Fireproof's Barry Meade

With limited spatial environments, *The Room Three* and its ilk dedicate much of their performance resources to highly detailed textures and complex audio soundscapes – a focal point often eschewed by developers working with the relatively limited power of mobile devices.

"All three *Room* games run on the iPhone 4S and we are sometimes asked how we got that fidelity of artwork on such old devices," Meade reveals. "We used to design and build open-world racing games on console so, to be honest, working to a budget and maintaining framerate was far easier on *The Room* than it was when we made the *Burnout* games. As an art team we've been ploddingly churning out cities full of low-poly inanimate objects for most of our careers so it's no coincidence *The Room* is all about sexy looking objects that don't move.

"There's no trick to it – our meshes aren't more complex than any other devs – we've just been schooled over the years in how to make good art decisions to mask how cheap our assets are."

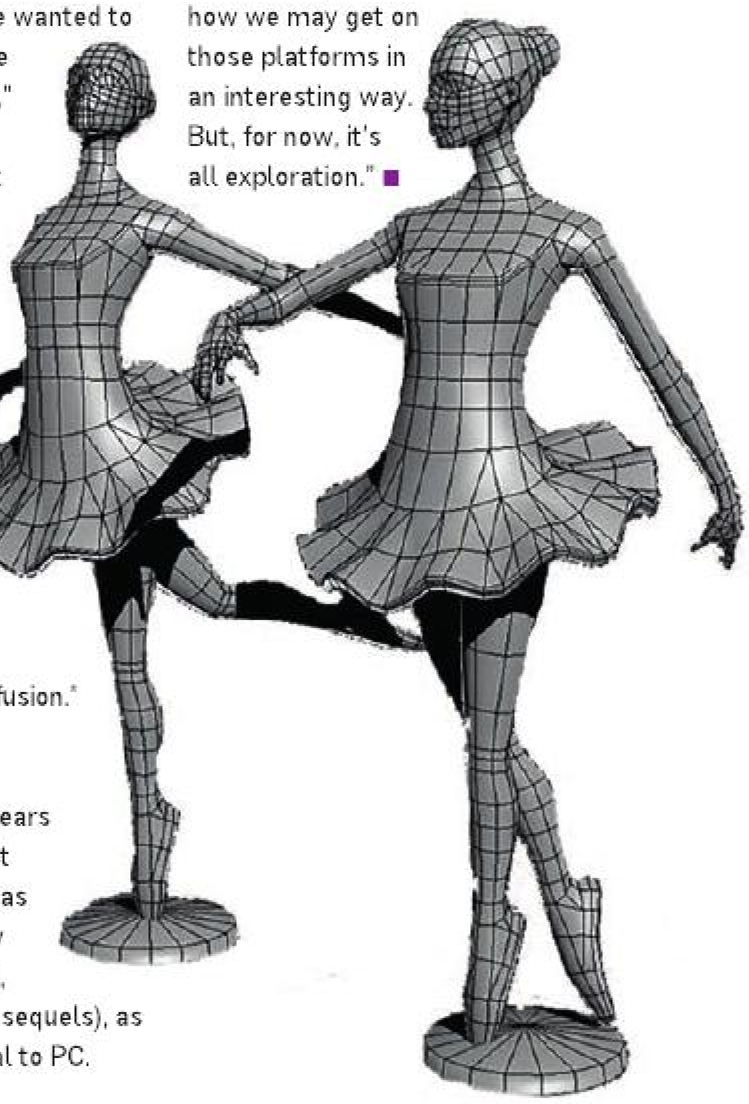
When it comes to constructing *The Room*'s intricate puzzles, Meade says that testing is vital to ensure that everything runs like clockwork.

> Mobile has a long way to go before its potential is exhausted.
> *Barry Meade*

"Creative director Mark Hamilton and Fireproof co-founder Chris Cannon start with a bunch of ideas for boxes or puzzles and then, together with our designers Jeremy and Tom, whittle the ideas down to the ones that seem the most interesting mechanically or visually," he recalls. "From there they are refined through use – we build them immediately, begin to play and if they work, they stay and undergo iteration. For the games' difficulty level we just try to maintain a somewhat gentle journey for the player. We don't believe in making a game overly difficult; we want people to get to the end and get their money's worth."

The Room's puzzles can stump players with their enigmatic solutions, but there's one element of the game that isn't confusing: its controls. Every action, from manipulating object puzzles to traversing the environment, is executed with simple touch inputs.

"In 2012, we had a number of ideas for mobile games, but we chose the 'Puzzle Box' idea – which became *The Room* – because, above all else, we wanted to make a game that used the touch interface really well," Meade recollects. "The coding side of that was not easy, however; Rob spent a lot of time redoing stuff to get the gestures and physics working as well as we could in the time we had. The touch interface is an interactive language that every mobile user speaks and is a gift to developers. Used sensibly, it's a gateway to understanding – not confusion."



ROOM TO GROW

It's been a whirlwind few years for Fireproof. Since the first *Room* in 2012, the studio has released a new entry every year (an expansion in 2013, followed by the two direct sequels), as well as bringing the original to PC.

Its debut served as one of the first examples of a console-quality experience utilising mobile's unique aspects – yet Meade believes that most developers building for iOS and Android still fail to make the most of the platform, meaning plenty of potential for innovative newcomers remains.

"For all its claimed dynamism and data-based planning, it seems to take our industry an eternity to learn anything on this platform," he laments. "Mobile remains a platform that delivers a very specific type of game to a specific type of audience. That vacuum suggests mobile has a long way to go before its potential is exhausted. I always advise devs not to listen to the noise – if there's a gap in the mobile market for what they want to make, go for it."

As for Fireproof itself? Unsurprisingly, the studio isn't done with *The Room* just yet. Although, with the prospects of virtual reality growing, Meade hints that the franchise may be set to revolutionise a completely different medium.

"We want to continue making games in the *Room* universe, but we're not ready to jump onto *The Room Four* just yet," he reveals. "We're very interested in VR and what's possible with a game like ours in that space, so we hope to investigate that a bit more this year. We also love PC and console as a market, and have some ideas for how we may get on those platforms in an interesting way. But, for now, it's all exploration." ■

RISE OF THE **BACKEND**

GameSparks' **Ellie Lawson** explains why Backend-as-a-Service providers expect more demand – not just on mobile but virtual reality, PC and console, too – in 2016

While many have claimed that virtual reality is set to become a multi-billion industry, developers are now embracing the technology of Backend-as-a-Service (BaaS) solutions to create monumental gaming titles across all platforms – including many of the much talked-about contributions to virtual reality that are to be announced at GDC this month.

Despite once being viewed as a nascent industry, BaaS is quickly maturing to become an essential tool within any developer's toolkit. Earning a reputation for being able to cope with the high demands created by mobile games, BaaS is being considered by many as a suitable solution to deal with data loads from other platforms.

This includes games for PC and console, as peak loads of all but the Top 10 games on Steam represent considerably lower player volumes than a successful mobile title. Even virtual reality titles – such as Reload Studios' upcoming PlayStation VR title *World War Toons* (*pictured*) – require BaaS to power their multiplayer.

Well-established mobile devs, who are aware of the benefits of BaaS, are producing titles for other platforms, such as PC, and taking their tools and expertise with them.

SERVER-SIDE STRUGGLES

Since the steep incline of the 'mobile boom' in 2008 that resulted in a surge of titles filling their respective stores, developers are now beginning to struggle to make a living in an oversaturated and highly competitive market that arguably dictates a very linear format of becoming successful.

> **Peak loads of all but the Top 10 games on Steam represent considerably lower player volumes than a successful mobile title.**
> *Ellie Lawson, GameSparks*

It's possible that alternative platforms such as Steam offer much more creative flexibility, giving developers the opportunity to shine in an environment that allows much more room to breathe.

Up until recently, the biggest rival to BaaS has always been self-supply. However, after considering the time, talent and financial costs involved with building a server independently, and weighing up the benefits of utilising the rich feature-sets and inherent flexibility that is on offer from some of the top BaaS platforms, the decision is no longer such a difficult one.

Those considering building something from scratch would have to employ an infrastructure team, along with a team of server developers. By enlisting BaaS, the infrastructure is ready and waiting, and you can develop all of the server-side components needed for a particular title at a fraction of the cost.

One of the resounding reasons why developers of PC, console, virtual reality and mobile all adopt BaaS is risk reduction. Its role within the gaming ecosystem equips any developer and publisher with the tools needed to run live game operations, enabling them to grow audiences, optimise retention and improve the overall economic performance of their released games.

There is thought to be a certain inevitability around PC and console beginning to adopt the free-to-play model as competition within each market heats up. Although the playerbase may be much more discerning, if executed correctly by implementing the correct tools, a positive response will come quickly.

GameSparks and other successful BaaS providers have been working with PC and console titles for a while. It is clear that although mobile may have been one of the first to enlist BaaS, upcoming weeks will prove that it is not just a mobile games technology. 2016 is the year that PC, console and VR will embrace Backend-as-a-Service. ■

You can learn more about GameSparks' BaaS offering at **www.gamesparks.com**

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Games Funding Workshop
Practical workshop to help indies prepare for fundraising

VR track
Will explore every aspect of VR across all disciplines

New for Networking:

Online Meeting Planner
Don't leave your business meetings to chance, pre-book them and get more out of your visit.

New for the Expo:

VR Gallery
The latest games and hardware on display for you to experience

Meeting Zone
More space for business meetings

Tracks
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> *The community of support and peer sharing of information about how to think about success and earn success is inspiring to see at Develop.*
>
> *Randy Pitchford, Gearbox Software*

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HOW TO GIVE CLOTHING THAT EXTRA SWISH WITH **CRYENGINE VCLOTH**

Crytek's technical artist **Alexander Raab** reveals how you can stay with the flow by integrating the firm's cloth physics technology into your game's character models

CryEngine has been setting the standard for visuals in game development for over a decade.

Today, we're going to detail our powerful VCloth tool, which renders cloth in a simple and highly realistic way and can make a big difference to the player's ultimate immersion in a scene.

Within CryEngine, you can use VCloth, which was developed for *Ryse: Son of Rome* and allows you to quickly produce cloth physics simulations on items and characters with ease.

01 OLD TECH: ROPE-CHAINS

Prior to VCloth the method to create these types of simulation were done using rope-chains that had to be named in a certain order and linked to the main skeleton.

This method had serious limitations, such as:

- Multiple strands required
- Equal bone spacing
- Physicalised root bones
- Strict bone amounts in all chains to work

This complicated setup led to many artists not being able to set the bones properly and having issues understanding all of the steps involved, from rigging to the physics parameters in the engine, that make them behave correctly.

02 NEW TECH: VCLOTH

With VCloth you can simply skin the geometry for the simulation mesh and the render mesh to make CryEngine aware that this piece of geometry has physical properties. For this solution we came up with the idea of using a lower-res simulation mesh that acts as a wrap deformer to the render mesh at runtime.

THIS MONTH'S TUTOR

Name: Alexander Raab
Role: Technical Artist
Company: Crytek
Bio: Alex worked as a tech artist on *Ryse: Son of Rome* and managed many of the cinematics and cloth simulation setups seen within the game. Specifically, he worked on setups for characters such as Basilius and Winter, as well as destruction simulations, rigging, skinning and Python scripting.

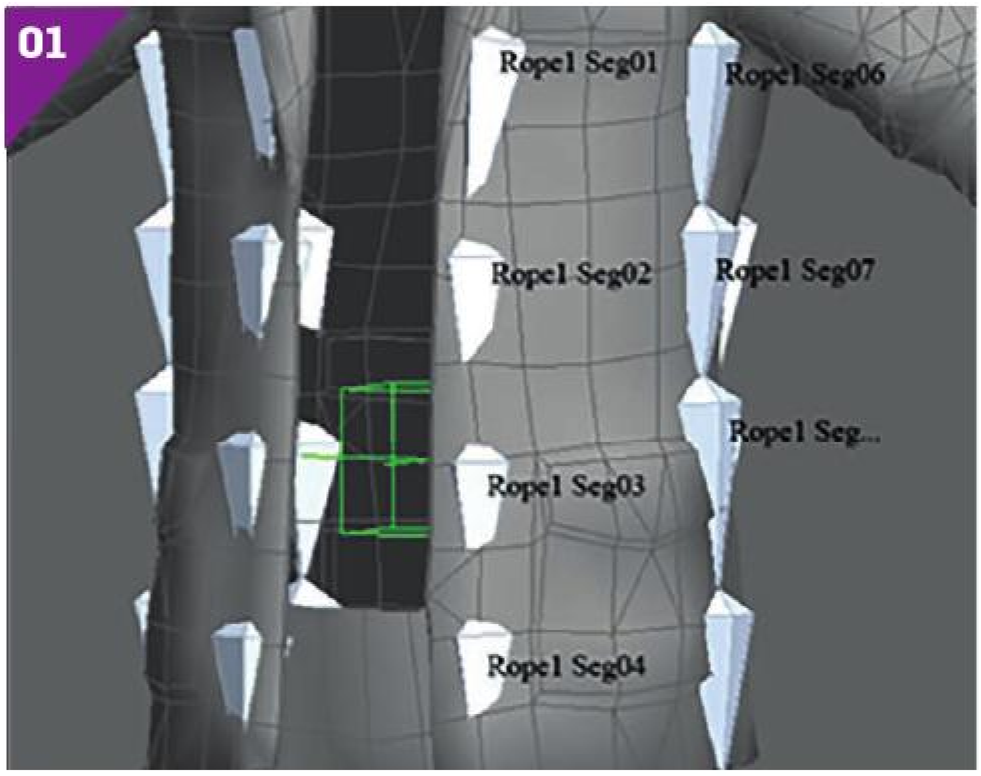
VCloth has many benefits in comparison:

- No bones required
- Only two meshes
- Proxy collision defined in engine
- No naming restrictions or extra files used

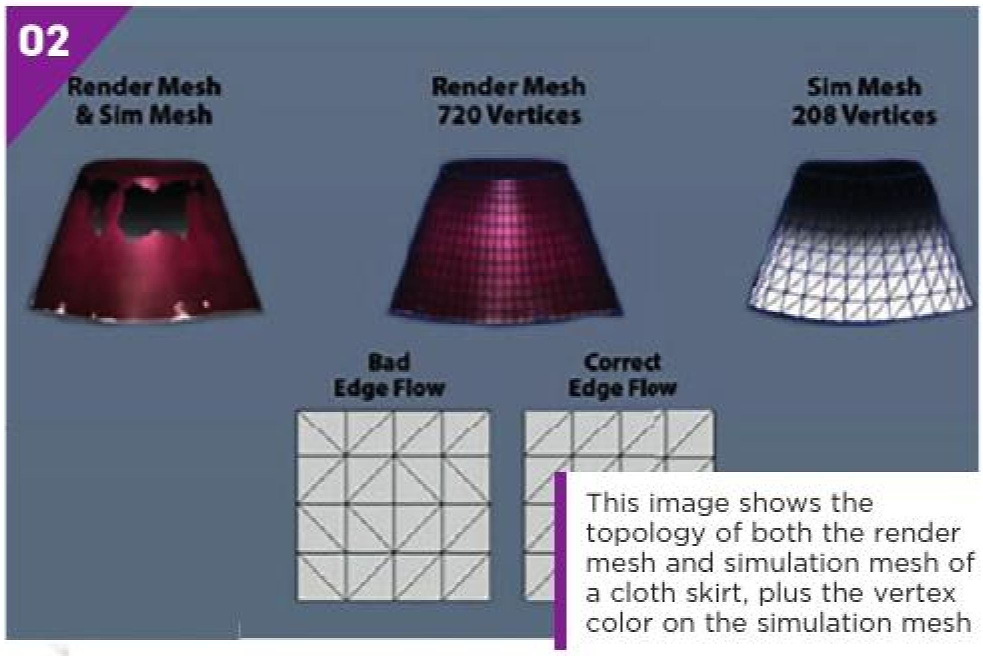
03 DCC TOOL (MAYA) CREATION PROCESS

With vertex colors you can define the relationship between the cloth physics and the original skinning. Black vertices never get simulated and always get their position from skinning. White vertices mean they are fully simulated and have no connection to skinning, while grey vertices get pulled, like a spring, towards their corresponding skinned positions.

01

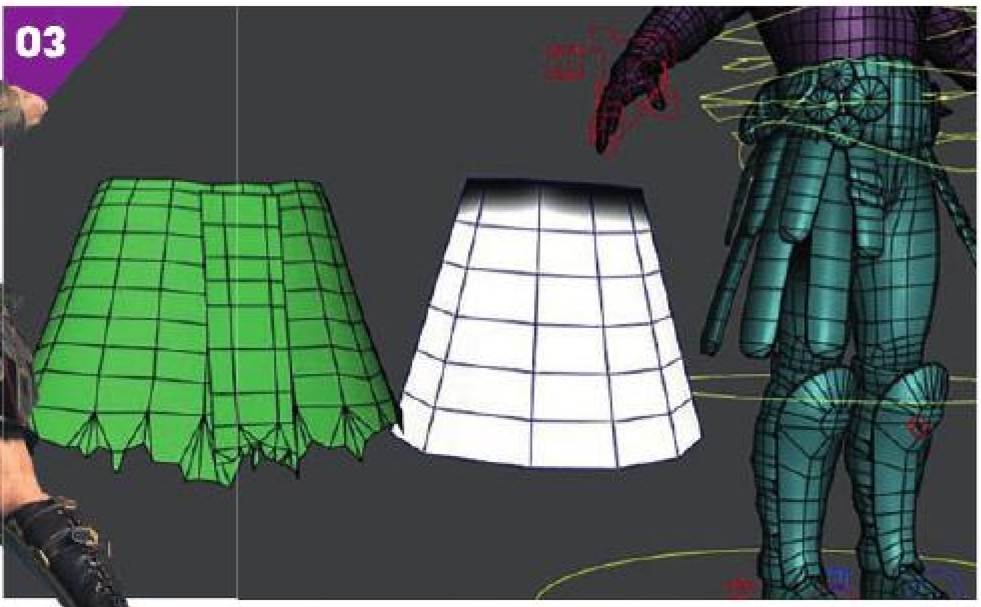


02

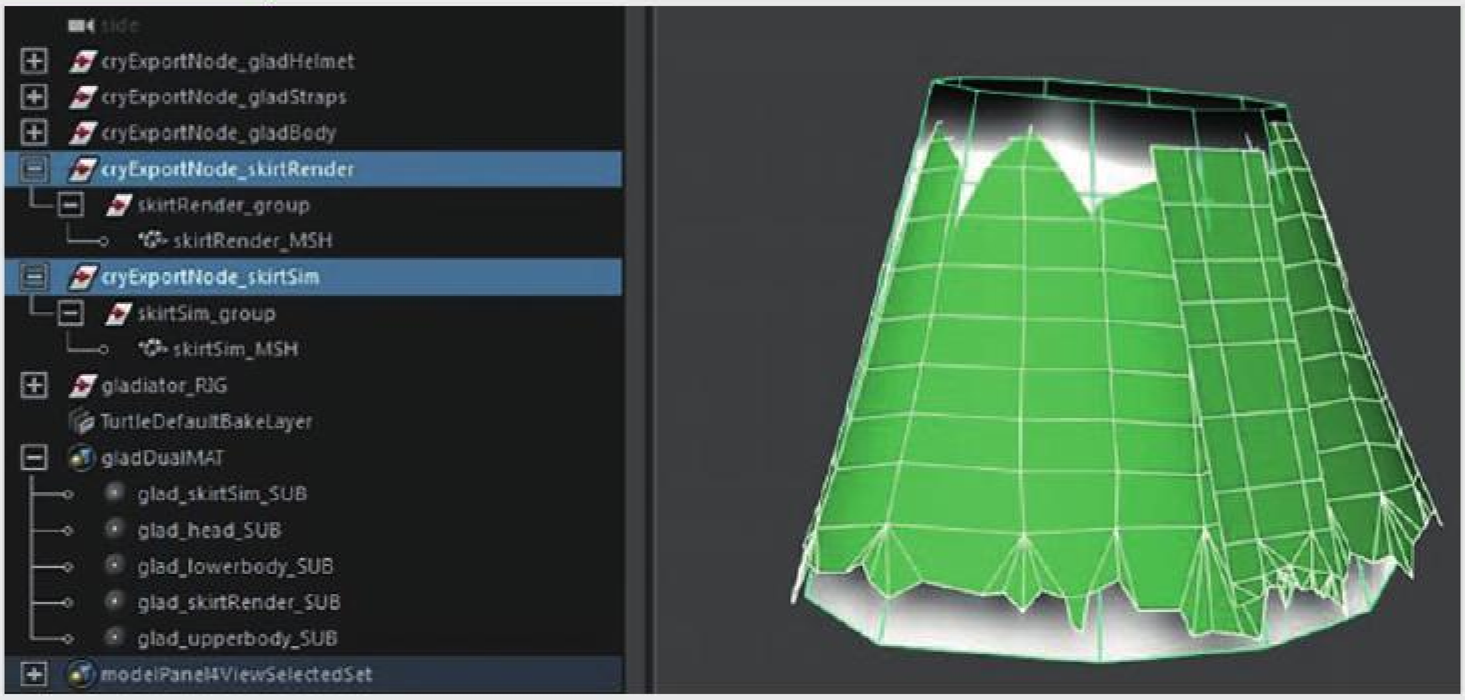


This image shows the topology of both the render mesh and simulation mesh of a cloth skirt, plus the vertex color on the simulation mesh

03



MAYA STEPS:

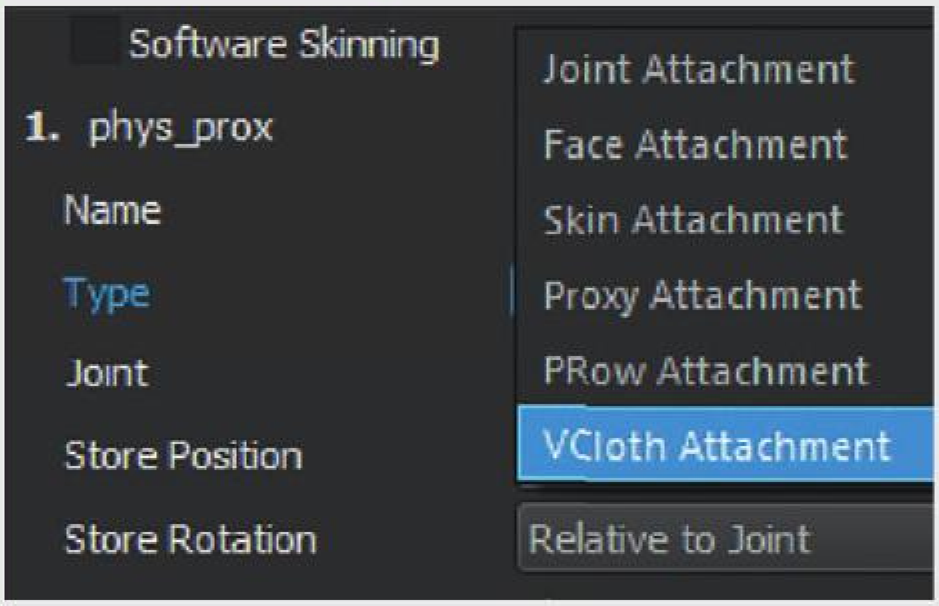

side
cryExportNode_gladHelmet
cryExportNode_gladStraps
cryExportNode_gladBody
cryExportNode_skirtRender
skirtRender_group
skirtRender_MSH
cryExportNode_skirtSim
skirtSim_group
skirtSim_MSH
gladiator_RIG
TurtleDefaultBakeLayer
gladDualMAT
glad_skirtSim_SUB
glad_head_SUB
glad_lowerbody_SUB
glad_skirtRender_SUB
glad_upperbody_SUB
modelPanel4ViewSelectedSet

1. Create a simulation mesh in similar size to the render mesh. It needs a lower polycount than the render with nice clean edge flow for best results. You can duplicate the geometry, but increasing the number of vertices can lead to unpredictable physics calculations.

2. Skin the simulation and render mesh to your skeleton. Apply vertex color to your simulation mesh. Bear in mind: black equals skinning, white equals simulation.

3. Export both objects as separate skin attachment.

CRYENGINE STEPS:


Software Skinning
1. phys_prox
Name
Type
Joint
Store Position
Store Rotation
Joint Attachment
Face Attachment
Skin Attachment
Proxy Attachment
PRow Attachment
VCloth Attachment
Relative to Joint

1. Open the character tool and create your Character Definition File (CDF) as you would by default. Add a VCloth attachment to your CDF.

2. Specify the path to the Simulationmesh and the Rendermesh and adjust the VCloth Simulation-Settings exposed in the UI (such as stiffness, gravity or friction).

3. Assign respective materials to the attachment.

4. Save your CDF.

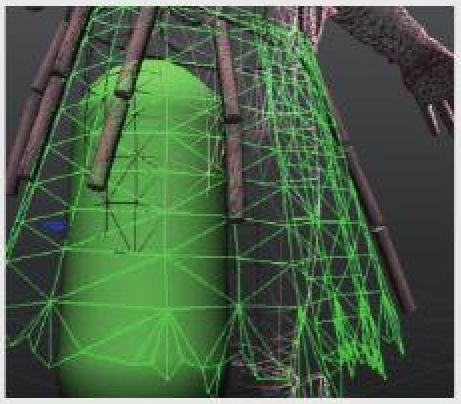
CRYENGINE COLLISION SETUP

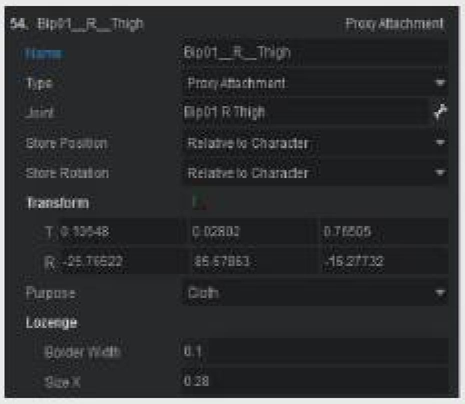
Now we have set up the VCloth attachment to expose the simulation and render meshes to be physicalised, we must construct the physics collision proxies to make sure the cloth interacts and collides with the character's body correctly.

1. Create the collision proxy:

- Go to 'Display Options', 'Secondary Animation' and enable 'Cloth Proxies' to show the cloth proxies in the viewport.
- To set-up the grey proxies (lozenges) on a character, create a new socket, rename it to "pelvis_prox" and set the type to 'proxy attachment'. This enables a new panel where you can choose the purpose of the proxy (at the moment only 'Auxiliary' is supported by default, but with the CDF modification it exposes the 'Cloth' option) and sliders to define the shape and transformation of the lozenge. The screenshots below show the setup of a capsule. (That's a 1D Lozenge at the right leg.)

2. Set the 'purpose' to 'Cloth' to activate the proxy mesh collision with your new VCloth attachment.





54. Bip01__R__Thigh — Proxy Attachment

Name: Bip01__R__Thigh
Type: Proxy Attachment
Joint: Bip01 R Thigh
Store Position: Relative to Character
Store Rotation: Relative to Character
Transform
T: 0.10548 0.02802 0.76505
R: -25.76522 85.67863 -16.27732
Purpose: Cloth
Lozenge
Border Width: 0.1
Size X: 0.28

CONCLUSION

VCloth can streamline your workflow and eliminate extra legwork, so you can concentrate on the aesthetic qualities of your character. With VCloth, you paint it and you get what you want, with half the setup in-engine, which means game designers can tweak character models on the fly. Along with facial animation, achieving accurate cloth solving has been one of the holy grails of game development. It's a real marker of quality and achieving this level of detail goes a long way to immersing and wowing players – and that's all that any game developer ever really wants. VCloth is now available in CryEngine for all developers.

You can find more tutorials at **www.develop-online.net/tutorials**

MAKING MONEY ON MOBILE

Smart devices have made a fortune for some of the world's biggest studios. Marmalade is on hand to offer its advice on how developers can reap those rewards

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Marmalade's Ludlow (*below*) and Bruno (*right*) say mobile devs need to fully research monetisation options

The mobile games market is currently worth billions and, while it may seem like the lion's share of that wealth is taken by a handful of developers, smaller studios can still find success on smart devices.

Marmalade Technologies has gone to great lengths to open up a less publicised mobile market to all developers: the Amazon Appstore.

The company's free SDK – Marmalade for Amazon – enables devs to develop natively for and publish with a single click to the online retailer's Fire devices, which range from the Kindle Fire tablet to the Fire TV micro-console and streaming sticks.

"We have worked with Amazon to ensure the services that matter most to developers are built right in to the product," says Marmalade CTO Adalberto Bruno. "We're also proud to say we are the first third-party solution to incorporate Amazon Underground APK management."

Underground is Amazon's newly launched monetisation model, where games creators are paid based on how much their app is used, rather than through ads or in-app purchases. While the model is still very new, Marmalade reports that it has already helped numerous studios see large increases in revenue compared to more traditional approaches.

"These days there are many routes to monetisation and it can be a complex field, so some research and experimentation may be required," says Bruno. "Marmalade for Amazon gives you access to all these techniques, from ads to IAP and newer alternatives such as Underground, so whatever direction you think will work best for you, we've got you covered."

KNOW YOUR AUDIENCE

Simply introducing ways to monetise your mobile users is no guarantee of success, of course. Developers need to understand their players' behaviour – as Marmalade Game Studios learned with its latest release, *Spinguins*.

"As free-to-play gaming continues to go from strength to strength, analytics and the ability to adjust data on a day-to-day basis to suit your players' needs has become even more important," says product manager Aaron Ludlow.

"We love our players, and we want them to love us too, so knowing when to introduce premium currencies and power-ups are important. That's why we need to analyse the data we receive from data to find the best opportunity to do so."

The answer was Marmalade Games Services, which uses GameSparks to help power the back-end, ensuring *Spinguins* was up-to-date and satisfying players as best as possible.

"There are so many solutions out there, but the ability to have these two key capabilities – live in-game data update and live currency/IAP management – integrated into Marmalade Game Services is a real game changer," says Ludlow.

"I've spoken to less experienced devs within the free-to-play field and they have been impressed by how easy it has been to 'analyse and change' on-the-fly, just like the larger free-to-play titles in the market."

> **The ability to adjust data on a day-to-day basis to suit players' needs has become even more important.**
> *Aaron Ludlow, Marmalade*

TOP TIPS

The availability of these services is just one tool in developers' monetising arsenal. Studios have to be smart about how they target and support their users in order to improve their chances of increasing revenues.

"I won't pretend it's easy to compete in the free-to-play space," Ludlow says. "You have companies who spend millions of dollars in user acquisition, but it is possible to succeed. Know your market, have belief in your game and take advantage of some of the tools out there that can give you access to the type of tech and services that companies spend millions of dollars investing in.

"Also, have a think about the various ways you can monetise your game. Adverts, of course, continue to be very popular. If you do introduce ads I would recommend them being 'user activated' where possible. This way, players know exactly when and where they are going to appear."

Ludlow adds that giving out rewards for watching ads often helps increase your revenue. Ad revenue helps make money from the people that will never purchase IAPs, but it is important that your title can generate enough revenue from its microtransactions – assuming you have them. Otherwise, devs will need to gather a much larger audience in order to make enough revenue solely from ads.

He concludes: "It's going to be tough, it's not easy, but it will be incredibly rewarding when you get your first download and your first IAP – hopefully, the first of many." ■

WHY MARMALADE MATTERED
Marmalade for Amazon helps devs access the retailer's growing Appstore, while Marmalade Game Services enable devs to learn more about their players and how to monetise them.
www.madewithmarmalade.com

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TOOLS SPOTLIGHT

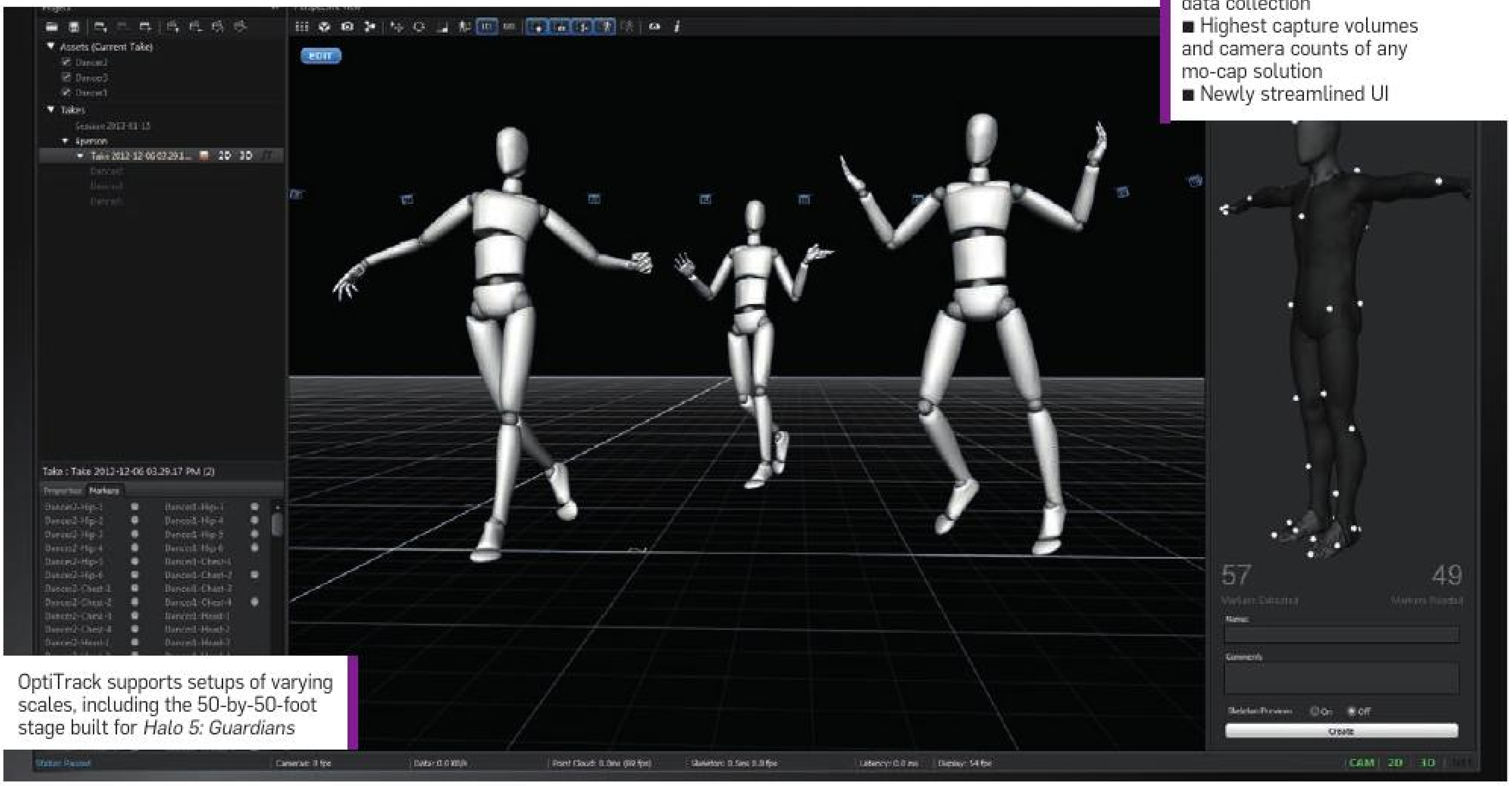
OPTITRACK

With users including 343 Industries, Remedy and Rockstar, this mo-cap solution boasts major prestige. We take a closer look

Product: OptiTrack Motive
Developer: OptiTrack
Website: optitrack.com/software
Price: $999 (Motive: Tracker), $1,999 (Expression), $2,499 (Motive: Body)

Key features:

- Motion-capture for both small- and large-scale setups
- Enhanced rigid body tracking for improved object positional data collection
- Highest capture volumes and camera counts of any mo-cap solution
- Newly streamlined UI



OptiTrack supports setups of varying scales, including the 50-by-50-foot stage built for *Halo 5: Guardians*

OptiTrack combines the Motive software with high-speed tracking cameras to provide devs with the ability to capture action ranging from subtle movements to large-scale stunt work.

"OptiTrack offers the best-performing platform in motion capture, with intuitive production workflows and all the depth you need – whether running a massive stage or modest conference room setup," says Brian Nilles, chief strategy officer at OptiTrack. "Combined, our Prime Series cameras and Motive software deliver the largest capture volumes in the world, most precise 3D data and highest camera counts ever achieved."

The technology can be utilised throughout development, from prototyping and concepting to keyframe animation reference and final solves, and has been used by studios including Remedy, 343 Industries, Cloud Imperium, Ready at Dawn and Rockstar.

"Developers of all sizes are using OptiTrack systems for everything from character animation to previs," explains Nilles. "343 Industries recently built a new mo-cap stage outfitted with OptiTrack Prime 41 cameras for development on *Halo 5: Guardians*. Several Kickstarter-backed studios like Xaviant and Cloud Imperium have also tapped OptiTrack gear. Lately, OptiTrack systems are increasingly being used to track participant movements for immersive gaming experiences."

The latest version of Motive features enhanced rigid body tracking, which helps boost precision while gathering object positional data. Nilles says that future updates will further expand rigid body tracking capabilities, including supporting greater numbers and with lower latency.

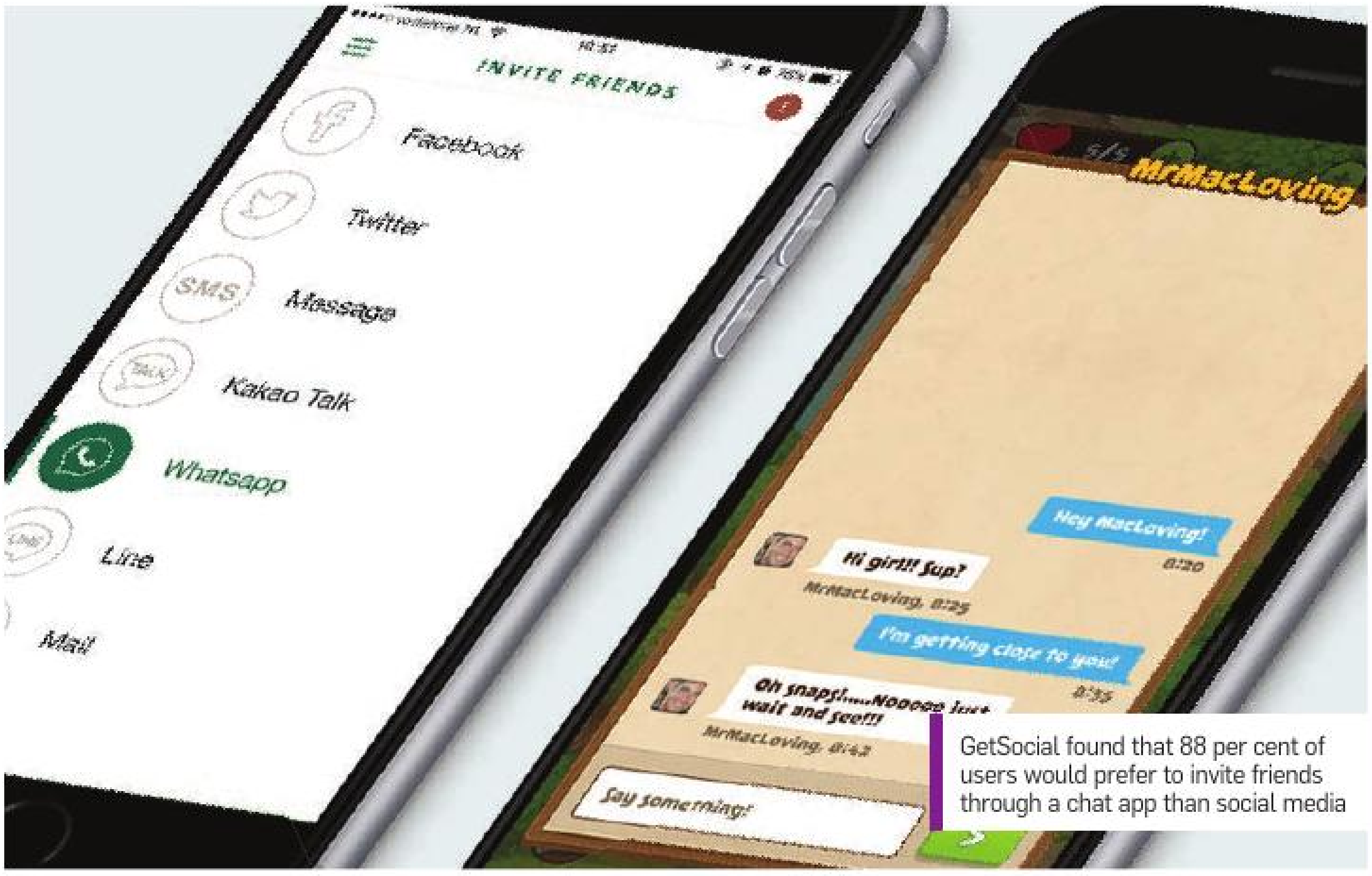
> **OptiTrack systems are increasingly being used to track participant movements for immersive gaming experiences.**
>
> *Brian Nilles, OptiTrack*

"OptiTrack's software development efforts over the last two years have enabled us to produce the most accurate system available today," he reasserts. "In parallel, we've worked hard to deliver the world's easiest to use production workflows, which are also flexible enough for the most sophisticated shoot requirements. Our 2016 focus is furthering those tools to help studios of any size realise fast gains when compared to other animation techniques."

Nilles concludes: "We've always maintained that motion capture should be widely accessible, and our offerings reflect that mentality." ■

11 REASONS WHY DEVELOPERS SHOULD IMPLEMENT GETSOCIAL

Find out the key reasons you should take a look at **GetSocial,** a product that helps developers make the most of social media when promoting their games



Hey MacLoving!
8:20

Hi girl!! Sup?
MrMacLoving, 8:25

I'm getting close to you!
8:35

Oh snaps!....Nooooo Just wait and see!!!
MrMacLoving, 8:42

Say something!

GetSocial found that 88 per cent of users would prefer to invite friends through a chat app than social media

There are 101 reasons in our view why you should integrate GetSocial. Our team is so passionate about the product that sometimes we get carried away, so we will keep it short and just go with 11.

01 FREE USER ACQUISITION

On average, the CPI is $2.73 for mobile games. However, 86 per cent of users generally leave the day after downloading the app. GetSocial's free 'smart invites' product solves this issue by allowing players to invite quality users. 88 per cent of users would rather invite their friends via their favorite chat apps than through Facebook or Twitter.

02 REWARD YOUR PLAYERS

GetSocial's deep linking technology allows you to reward your players for every successful invite, offering them with more incentives to spread the word.

03 COMMUNITY IS KEY

In GetSocial's activity feed, users can engage with one another by voicing their opinion, sharing tips, messages and more. Developers can reach out and speak to their users directly, building trust and brand awareness. Activity feeds are the modern day forums.

04 CUSTOMISABLE TOOLS

Your font, your colours, your icons, your window frames and more – no one will ever know you've implemented GetSocial because the tools fit seamlessly within your games.

05 INCREASE YOUR LTV

Push notifications such as 'We miss you, come back' are simply not working. Our data shows that users are more likely to return to your app if they receive a social push notification such as: 'Kim Kardashian sent you a message' or 'PewDiePie liked your comment'. Add an activity feed and chat tools to trigger these push notifications.

06 INNOVATIVE WAYS TO CROSS-PROMOTE

Advertise other titles for free via your activity feed. No more CPI. With GetSocial, you're able to post images and download links to your activity feed right from your dashboard. Players can engage with the posts by liking it and commenting on it.

07 EASY TO INTEGRATE

Just one SDK will address your user acquisition, retention and monetisation challenges, from the backend to the frontend. We offer a wide range of tools that solve the biggest issues the app world are currently facing.

08 INCREASE APP ENGAGEMENT

Players are able to engage with other users and their friends via activity feeds and chat. The more engaged your users are, the less likely they'll want to leave.

> “Users are more likely to return if they receive a personal social push notification.

09 INCREASE REVENUES

The GetSocial activity feed will provide you with a new platform to promote your in-app items. Not only will you see users naturally discussing ways to increase engagement via in-app purchases, but you can also promote your items with images and clear call to actions from your developer portal directly to the activity feed.

10 UNDERSTAND YOUR USERS BETTER

By adding an activity feed, you can see what users are discussing, what they're complaining about, which levels they're stuck on, and more. Use the activity feed to do your market research from within the app itself.

11 ONE SOLUTION FOR EVERY NEED

Increase your app's virality, engagement, retention and revenues by implementing GetSocial's customisable tools. Did we mention that the smart invites are free? ■

Register at **developers.getsocial.im/#/register/**

ASK AMIQUS

Liz Prince, business manager at recruitment specialist Amiqus, helps solve some of the trickier problems job seekers currently face in the games industry

Q Dear Amiqus, how can indie studios at GDC make the most of their investment in attendance, and share the spotlight with the titans in the room?

The first top tip is to be clear on your objectives while attending. This could be anything from finding partners or a publisher, raising investment, learning about the latest tech or shopping for suppliers. If it's more than one of these, prioritise based on things you can only achieve at GDC.

You will need a target list of who you want to meet and why. Focusing on key people will prevent you being overwhelmed and help you plan how to get in front of them.

If your indie studio is looking to share the spotlight on the basis of floor space or stand budget, it's easy to feel like GDC is David versus Goliath, but smaller studios can use their size to their advantage. You might have less fancy signage than the big guns, but it's much easier to get your product in front of someone and literally take your game to the right people.

Paul Croft at Mediatonic suggests that devs should prepare a two-minute video of your game.

"It means you can quickly show people the very best bits," he says. "It can be difficult to demo live games at the show – particularly those that depend on the internet as mobile signals are not always reliable".

Kelvin Aston of Team 17 considers the upside of being on your own stand as an indie: offering an authentic experience to visitors and being able to chat with the dev team who actually built the game – something that would be trickier for the big brands.

If you're worried about the outlay for a stand, it is possible to mitigate some of the cost by banding together with other devs or taking some space on a stand provided by the trade bodies. UKTI is the biggest supporter here, and other bodies such as UKIE, TIGA, Creative England and National Lottery can also offer advice and assistance.

Having a stand isn't the only reason to be at GDC; there are lots of alternatives to help you get something out of this event.

"If you are going to learn about the games industry then I highly recommend you move around all the tracks soaking it all in" says Space Ape co-founder Simon Hade.

If you decide that a one-person reconnaissance to GDC is necessary before taking the full plunge you can always dry-run the stand experience and expenditure at events dedicated to indie development like EGX Rezzed, which are a little closer to home.

As with most games events, the line between business and social are blurry. It's key to select the right parties in addition to time on the floor.

Social media is a very useful tool, with Facebook groups such as the Fellowship of GDC Parties and Twitter streams like @GDCParties pushing out lots of handy information.

The great thing about networking is that it levels the playing field for devs. You're alongside everybody else, so a social one-to-one might be the right opportunity to have that conversation about publishing or funding.

Hade bucks the trend on business founders keeping their ground-breaking ideas hush-hush: "Ideas are cheap, execution is what matters. Share what you're doing and your idea will benefit from exposure and feedback."

Andrew Bennison, MD of Prospect Games, has some final words of encouragement: "GDC provides valuable networking opportunities, it's hard work and a great experience so enjoy it to the full." ■

> **Ideas are cheap, execution is what matters. Share what you're doing and your idea will benefit from exposure and feedback.**
>
> *Simon Hade, Space Ape*

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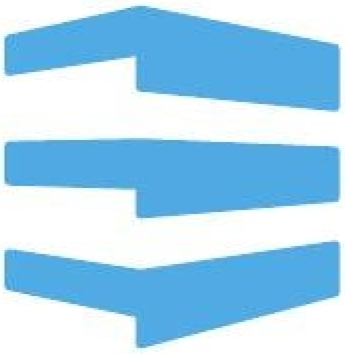

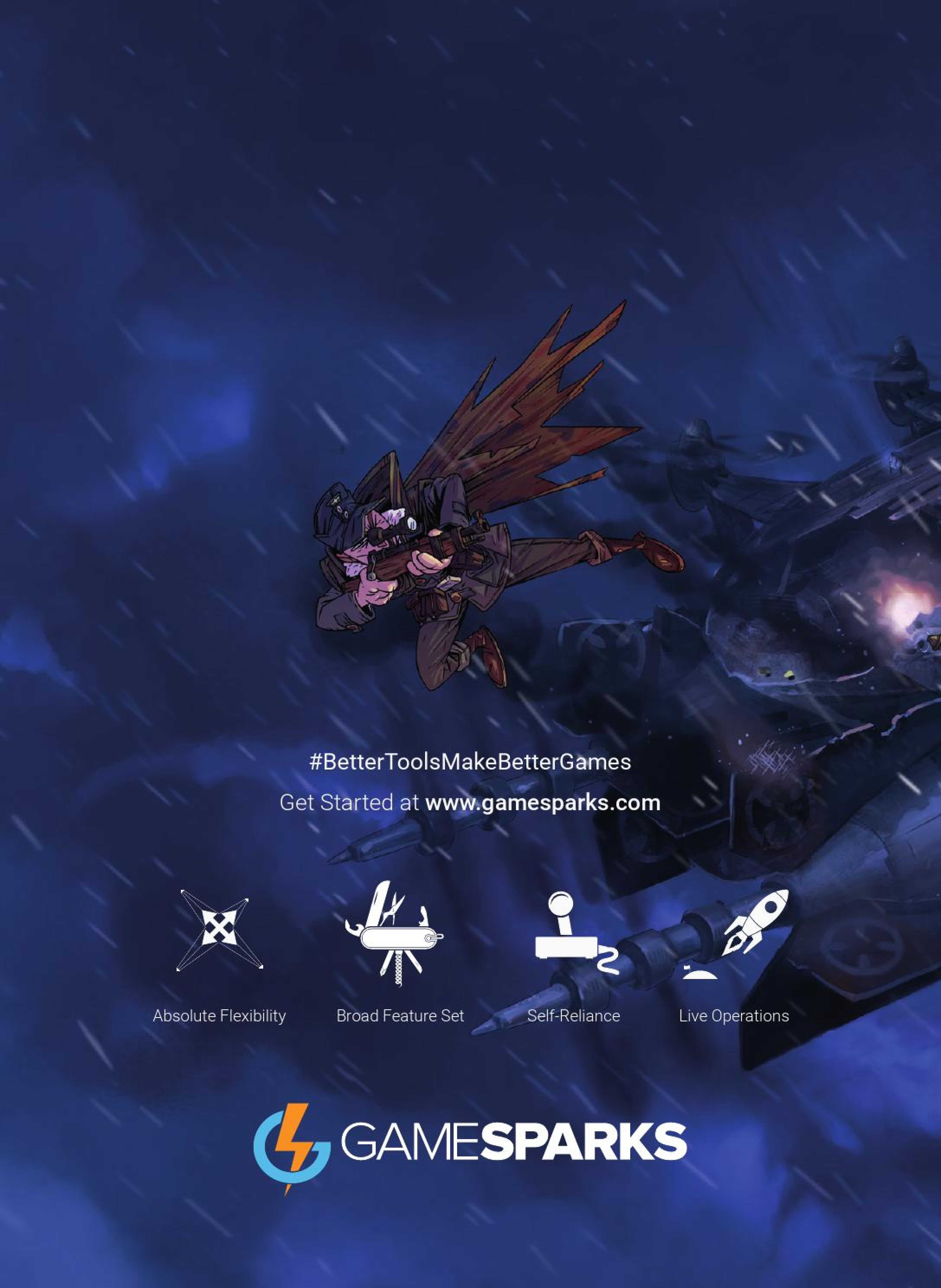
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